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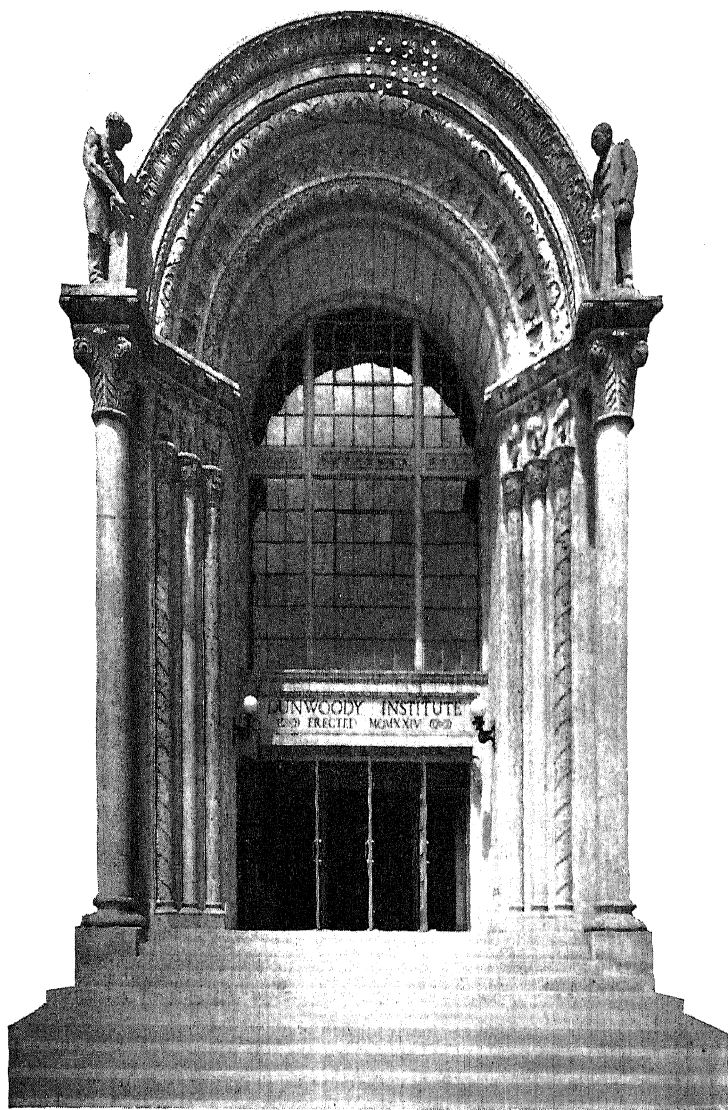


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ADULT EDUCATION
THE EVENING
INDUSTRIAL SCHOOL



THE OPEN DOOR OF OPPORTUNITY

THE EVENING INDUSTRIAL SCHOOL IS A PORTAL THROUGH WHICH AMBITIOUS
WORKMEN FIND THEIR WAY TO BETTER JOBS AND A RICHER LIFE

The Century Vocational Series

Edited by Charles A. Prosser

Adult Education

The Evening Industrial School

BY

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IN COLLABORATION WITH

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Evening and Part-Time Schools



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To
WILLIAM H. BOVEY

PREFACE

The last two decades have witnessed a considerable development of the evening industrial school. From that experience have come certain beliefs: One is that the evening school is still, and probably will continue to be for a long time to come, the device which we must use most extensively for the mass education—the extension training—of workmen in the skill and knowledge required for their lines of employment.

A second belief is that the evening school is a permanent and not, as some seem to believe, a passing phase of industrial and trade education. In a constantly changing industrial world, only the evening school affords the adult workman an opportunity to secure the help he needs to meet the rapidly changing problems and demands of his occupation or to fit himself for promotion. At its best, the evening school is the indispensable touchstone to which, throughout his wage-earning, the ambitious workman must return again and again for help when he needs it.

A third belief is that, in any country-wide program of systematic adult education for the workers in productive employments, the bulk of the enrolment in evening schools will consist of those who want training which will assist them in breadwinning. A fourth belief is that economic and social justice dictate the public support of a nation-wide system of evening industrial schools for adult wage-earners.

Finally, the time seems ripe to interpret the experience of the nation with such schools and to set down, as lessons learned, the kind of policies and procedures which have proved successful in the organization, administration, and operation of efficient instruction in the trades and industries for employed adults. All these beliefs have led to the preparation of this book.

FOREWORD

The evening school always has been and always will be a school for the worker. It serves that great group of men and women who are occupied during the day with those duties which go with adult life. As a social agency, therefore, it can never be replaced by the school for young people who have not yet entered into the real responsibilities of life. Further, in the field of vocational education or in other fields of education, the fact has long been recognized that if the adult is to be educationally served, it must be through some form of evening school.

Owing to the particular working conditions under which evening school work must be conducted, it has long been evident that what may be called the machinery of the day-school does not fit the evening school, whether it be a vocational school or a school for general education. The apparent failure of many evening schools and courses can be directly traced to an ignoring of this fact; hence it is with particular pleasure that I welcome this contribution to the special field of the evening school and for two reasons. In my opinion, it represents the first concrete contribution based upon practical working experience in this field. I believe also that it will be of great value to supervisors and administrators who are honestly concerned with the development of service to the adult citizen in all educational fields.

It is now beginning to be recognized that education is a business and that as such it is subject to the same general laws as any other business. It is efficient in proportion as it is able to render the particular kind of service which it aims to render and in proportion as it renders that service at a minimum expenditure of time and money. In the case of the evening school, efficiency will never be secured until the special conditions which surround this type of school are recognized and met. The whole history of the evening school in this country has been, on the whole, a history of inefficiency because the plain principles of good business have

not been applied. From this angle also this book will mark a great step in advance wherever the experience it embodies is utilized in the development of evening schools.

The evening school serves the adult group. It can only serve this group efficiently if certain fundamental facts are recognized. Among the most important of these truths are the special characteristics of the evening school student. In the first place, he is an adult. He is giving his leisure time to education. He constitutes a group which is uncontrollable in the sense that, with very few exceptions, no exercise of authority can keep him in school if he does not wish to remain. He can take advantage of evening school only when his other duties and responsibilities permit. He almost invariably comes to the evening school in order to secure certain very specific assistance which, in the vocational field, is almost always connected with an opportunity to better himself in employment.

All this means that the evening school, to be efficient in serving such students, must be practically a cafeteria, giving to any individual or group of individuals what they want and giving it when they want it. This situation is radically different from the situation in the regular day-school. The attempt to carry this principle out in practice requires the setting-up of a totally different type of organization in the evening school and involves totally different problems in administration. Experience in the last ten years has shown, to a very large degree, what these problems are and what types of organizations will enable efficient service to be rendered.

It has been my pleasure to watch for a considerable number of years the development of the evening school at Dunwoody Institute. In my opinion, the evening classes as carried on at that institution come nearer to meeting the needs of the adult group in the special field with which these courses are concerned than any other organization of evening classes, of which I am aware, in this country. With its large number of evening students and its freedom from the restrictions which frequently accompany public evening school service, there has probably been a greater opportunity to develop experimentally than has been possible

anywhere else in evening school systems under public school control.

For these reasons, I believe that the authors are particularly well equipped, not only because of their experience but because of the specially favorable conditions, to organize and present invaluable help in this particular field. As one concrete example, the development of a call staff and the degree to which they have found it possible to organize and utilize such a staff, is to my mind a highly important contribution to the evening school, not only to the evening vocational school but to any evening school.

I especially commend the chapters on the evening school student, success factors, housing, functioning subject-matter, organization, and selection and training of instructors. It seems to me that these chapters deal with matters which are fundamental to the success and efficiency of evening courses.

I believe that this book will have a far-reaching effect in helping evening schools and classes actually to meet the needs of adult citizens—those citizens who have on the whole constituted a group which has not, up to the present time, received that type of efficient service to which its members are entitled as citizens and taxpayers.

CHARLES R. ALLEN.

WASHINGTON, D. C.

CONTENTS

CHAPTER		PAGE
I	LESSONS FROM THE PAST	3
II	THE ECONOMIC CASE FOR THE EVENING INDUSTRIAL SCHOOL	16
III	THE EVENING INDUSTRIAL SCHOOL AS A BUSINESS	27
IV	THE EVENING SCHOOL STUDENT	37
V	SUCCESS FACTORS IN THE EVENING SCHOOL	54
VI	BUILDINGS	63
VII	BUILDING AUXILIARIES	75
VIII	LIGHT, HEAT, AND VENTILATION	85
IX	FUNCTIONING SUBJECT-MATTER	99
X	COURSES OF STUDY	116
XI	GETTING AND SCHEDULING UNIT COURSES OF STUDY	134
XII	QUALIFICATIONS OF INSTRUCTORS	144
XIII	SELECTING INSTRUCTORS	154
XIV	THE PRELIMINARY TRAINING OF INSTRUCTORS	175
XV	TRAINING INSTRUCTORS IN SERVICE	187
XVI	EFFICIENT INSTRUCTION	210
XVII	USING EFFICIENT TEACHING METHODS AND PROCEDURES	224
XVIII	LOCAL ORGANIZATION	245
XIX	LOCAL MANAGEMENT AND SUPERVISION	265
XX	STUDENT RECORDS, REPORTS, AND FORMS	288
XXI	THE FEDERAL GOVERNMENT TAKES A HAND	304
XXII	STATE ADMINISTRATION OF LOCAL SCHOOLS	317
XXIII	STATE SUPERVISION OF REIMBURSEMENT	337
XXIV	STATE SUPERVISION FOR THE IMPROVEMENT OF LOCAL SCHOOLS	350
	APPENDIX	375
	INDEX	385

CHARTS

NUMBER		PAGE
I	CHANGING CONDITIONS AND PROBLEMS IN VOCATIONAL EDUCATION	21-23
II	COMPARING A MANUFACTURING BUSINESS WITH THE EVENING INDUSTRIAL SCHOOL	28-31
III	EFFICIENCY FACTORS AND BUSINESS PRINCIPLES FOR THE EVENING INDUSTRIAL SCHOOL	35
IV	COMPARING THE ADULT STUDENT WITH THE ADOLESCENT	38
V	ADAPTING THE EVENING INDUSTRIAL SCHOOL TO THE CHARACTERISTICS OF ITS CUSTOMERS	49-53
VI	SOME SUCCESS FACTORS IN EVENING INDUSTRIAL SCHOOLS	56
VII	CHECKING OR RATING CHART ON THE ————— EVENING INDUSTRIAL SCHOOL	61
VIII	COMPARATIVE ADVANTAGES OF CENTRALIZED VS. DISTRICT EVENING INDUSTRIAL SCHOOLS	73
IX	THE MINIMUM REQUIRED VS. THE RECOMMENDED FOOT-CANDLES	87
X	CONDITIONS AS TO LIGHTING IN THE ————— EVENING INDUSTRIAL SCHOOL	88
XI	ROOM TEMPERATURE STANDARDS	94
XII	CONDITIONS AS TO HEATING AND VENTILATING IN THE ————— EVENING INDUSTRIAL SCHOOL	96
XIII	RATING OR WORKING SHEET ON THE BUILDING OF THE ————— EVENING INDUSTRIAL SCHOOL	98
XIV	ANALYSIS OF DIFFERENT CHARACTERISTICS OF COLD-STORAGE KNOWLEDGE VS. FUNCTIONING SUBJECT-MATTER	109-110
XV	SHOWING DIFFERENCES BETWEEN THE OLD GENERAL COURSES AND THE MODERN UNIT COURSES FOR MACHINE-SHOP WORKERS	118-120
XVI	ANNOUNCEMENTS REGARDING COURSES OF STUDY OF THE ————— EVENING SCHOOL	122-124
XVII	COMPARING NEW AND OLD EVENING SCHOOL SERVICE AS TO INSURING FUNCTIONING SUBJECT-MATTER	128-129
XVIII	COMPARING THE UNIT COURSE AND THE OLD GENERAL-COURSE ORGANIZATION AS TO DEMOCRACY OF SERVICE	130
XIX	COMPARING THE ADMINISTRATIVE EFFICIENCY OF THE UNIT COURSE VS. THE OLD GENERAL-COURSE ORGANIZATION OF THE EVENING INDUSTRIAL SCHOOL	131-132

NUMBER		PAGE
XX	EVENING SCHOOL SCHEDULE FOR MACHINIST'S COURSES OF THE ————— EVENING SCHOOL	140-141
XXI	COMPARING THE IMPORTANCE OF DIFFERENT QUALIFICA- TIONS OF EVENING SCHOOL INSTRUCTORS	155
XXII	SUMMARY OF CHARACTERISTICS OF THE COMPETENT AND THE LESS COMPETENT WORKMAN	178-179
XXIII	SELECTED ITEMS OR ILLUSTRATIONS FROM AN INSTRUCTOR'S CODE ON MISTAKES IN TEACHING	193-194'
XXIV	VISIBLE INEFFICIENCIES AMONG INSTRUCTORS OF THE EVE- NING INDUSTRIAL SCHOOL	196
XXV	A LIST OF COMMON INDICATIONS OF POOR RESULTS IN AN EVENING INDUSTRIAL SCHOOL	198
XXVI	ANALYZING POSSIBLE CAUSES FOR RAPID DROP-OFF IN THE ATTENDANCE ON A UNIT COURSE	200
XXVII	CHECKING POSSIBLE CAUSES FOR THE FAILURE OF PUPILS IN A UNIT COURSE TO GET WHAT THEY EXPECTED	201
XXVIII	CHECKING SHEET FOR ANALYZING CAUSES OF POOR RESULTS OF A UNIT COURSE	202
XXIX	SUPERVISOR'S REPORT TO AN INSTRUCTOR ON ITEMS IN HIS TEACHING REQUIRING ATTENTION	206
XXX	INSTRUCTOR SUPERVISION REPORT	206-207
XXXI	SPECIAL EFFICIENCY DEVICES IN INSTRUCTION IN THE EVENING INDUSTRIAL SCHOOL	213
XXXII	EFFICIENT POLICIES AND PROCEDURES IN CONSERVING THE INDIVIDUAL EVENING SCHOOL STUDENT	226
XXXIII	SOME RECOGNIZED TEACHING DEVICES AND COMBINATIONS OF DEVICES USED IN THE EVENING INDUSTRIAL SCHOOL	239
XXXIV	SHOWING SIMPLE LINE ORGANIZATION OF PRIVATELY EN- DOWED EVENING SCHOOLS	246
XXXV	SHOWING ONE LINE ORGANIZATION FOR A PRIVATE TRADE SCHOOL	247
XXXVI	SHOWING A SIMPLE LINE ORGANIZATION OF A PUBLIC EVE- NING SCHOOL IN SMALL COMMUNITIES	248
XXXVII	SHOWING THE PLACE OF PUBLIC EVENING INDUSTRIAL SCHOOLS IN ONE LINE ORGANIZATION FOR A LARGE COMMUNITY	249
XXXVIII	GOOD AND BAD POLICIES AND PROCEDURES OF A SUPERIOR OFFICER OF AN EVENING SCHOOL DIRECTOR.	254
XXXIX	FULL VS. RECOMMENDATORY RESPONSIBILITY OF AN EVE- NING SCHOOL DIRECTOR TO HIS SUPERIOR OFFICER	256-257
XL	SHOWING SIMPLE LINE ORGANIZATION OF SMALL EVENING INDUSTRIAL SCHOOL	258
XLI	SHOWING ONE LINE ORGANIZATION OF A LARGE EVENING INDUSTRIAL SCHOOL	259

NUMBER		PAGE
XLII	SHOWING MAIN ITEMS OF RESPONSIBILITY OF THE EVENING SCHOOL DIRECTOR AND HIS STAFF	260
XLIII	COÖPERATION BETWEEN DIRECTOR AND PRINCIPAL IN THE SUPERVISION OF EVENING SCHOOL INSTRUCTION	261-262
XLIV	COMPARING THE CHARACTERISTICS OF A GOOD VS. A POOR MANAGER OF AN EVENING SCHOOL	266-267
XLV	IMPORTANT MATTERS OF THE EVENING SCHOOL TO BE PLANNED IN ADVANCE	272
XLVI	PROBLEMS OF THE EVENING SCHOOL REQUIRING THE USE OF DEFINITE POLICIES	272
XLVII	EFFICIENT ARRANGEMENTS FOR PRELIMINARY REGISTRATION IN AN EVENING INDUSTRIAL SCHOOL	276
XLVIII	ROUTING THE FLOW SHEET OF EVENING SCHOOL APPLICANTS	277
XLIX	LABOR-SAVING DEVICES IN MANAGING AN EVENING INDUSTRIAL SCHOOL	279
L	EFFICIENT POLICIES OF A DIRECTOR IN THE DEVELOPMENT OF EVENING SCHOOL EMPLOYEES	287
LI	HANDLING EVENING SCHOOL STUDENT MATTERS WITH APPROPRIATE FORMS AND BLANKS	301-302
LII	MANDATORY AND DISCRETIONARY STANDARDS FOR EVENING INDUSTRIAL SCHOOLS	311
LIII	SHOWING THE RELATION OF STATE AND LOCAL BOARDS IN THE OPERATION OF LOCAL EVENING INDUSTRIAL CLASSES	318
LIV	AN ANALYSIS OF THE RESPONSIBILITIES FOR LOCAL EVENING INDUSTRIAL CLASSES OF THE STATE BOARD FOR VOCATIONAL EDUCATION	320-321
LV	OUTLINE OF STATE BOARD SPECIFICATIONS DEFINING APPROVED EVENING INDUSTRIAL CLASSES	324
LVI	OUTLINE OF SPECIFICATIONS DEFINING THE CONDITIONS GOVERNING APPROVED EVENING INDUSTRIAL CLASSES	325-328
LVII	SHOWING STAFF ORGANIZATION OF STATE BOARD FOR ADMINISTERING AND SUPERVISING APPROVED VOCATIONAL SCHOOLS	332
LVIII	CHECKING SHEET OF STATE SUPERVISOR OF VOCATIONAL EDUCATION FOR USE IN THE INSPECTION FOR REIMBURSEMENT OF THE ———— EVENING INDUSTRIAL SCHOOL	339
LIX	STATE PLAN OF INSPECTION FOR REIMBURSEMENT OF LOCAL EVENING SCHOOLS, 1929-1930	343-344
LX	INFORMATION REGARDING COURSES AND STUDENTS OF THE ———— EVENING INDUSTRIAL SCHOOL	347
LXI	THE KIND OF ITEMS TO BE COVERED IN A PRELIMINARY	

NUMBER		PAGE
	ANALYSIS BY A STATE SUPERVISOR OF THE LOCAL DIRECTOR OF AN EVENING INDUSTRIAL SCHOOL	355-357
LXII	A PRELIMINARY STUDY OF THE DIRECTOR OF _____ EVENING SCHOOL	359-361
LXIII	ITEMS FOR CHECKING THE WORK OF DIRECTORS OF LOCAL EVENING INDUSTRIAL CLASSES	364-365
LXIV	WORKING SHEET FOR THE STUDY OF THE WORK OF THE DIRECTOR OF THE _____ EVENING INDUSTRIAL SCHOOL	366
LXV	ORGANIZING REGISTRATION WORK	378
LXVI	NOTIFYING INSTRUCTORS REGARDING REGISTRATION DUTIES	378
LXVII	SCHEDULING DUTIES OF INSTRUCTORS	378
LXVIII	SPECIAL SCHEDULE OF REGISTRATION	378
LXIX	NOTIFYING INSTRUCTORS REGARDING APPOINTMENT AND PRELIMINARY MEETINGS OF INSTRUCTORS	378
LXX	EVENING SCHOOL REGISTER	378
* LXXI	EVENING SCHOOL CLASS RECORD	379
LXXII	STUDENT'S SHOP PROGRESS CHART	379-380
LXXIII	A UNIT COURSE OF TEN LESSONS	380-381
LXXIV	AN EVENING SCHOOL LESSON-PLAN	381-382
LXXV	A CHECKING SHEET FOR EVENING SCHOOL LESSON-PLANS	382-383

**ADULT EDUCATION:
THE EVENING INDUSTRIAL SCHOOL**

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CHAPTER I

LESSONS FROM THE PAST

Few quotations are more frequently used than Patrick Henry's eloquent declaration that, "I have but one lamp by which my feet are guided, and that is the lamp of experience." This is just as true of evening industrial schools as of any other human agency. Whether "there is no new thing under the sun" or not, certainly this type of school is not new. On the contrary, it is one of the oldest educational institutions in this country. The changes through which it has passed contain many lessons for those responsible in any way for the evening industrial school of the present day. With these lessons this chapter is primarily concerned.

The Mechanic's Institute

As with almost all our older educational institutions, we borrowed the idea of evening schools for mechanics and tradesmen from England. Their real forerunner in the mother-country was the mechanic's institute. The first such institute was established two years before the opening of the last century. During the first half of this century, these institutions had a considerable development in England. In 1841, to illustrate, Great Britain had 216 of them, with a total membership of 25,651 or an average of 119 members each.¹ After 1820, these institutes began to appear in America. In both countries the effort to provide helpful technical knowledge for workmen was often associated with other activities,

¹ For much of the information on which this chapter is based, we are indebted to Mr. C. A. Bennett and his history of *Manual and Industrial Education up to 1870*, particularly to his chapter on "The Mechanics Institute Movement," pp. 301 ff. The book is published by The Manual Arts Press, Peoria, Illinois (1926).

such as elementary day-schools for the children of mechanics, particularly of indigent workmen—an activity which soon disappeared in this country after the rise of the free public school. We are here concerned only with the attempt to provide extension training for mechanics.

Comparing the movement in the two countries.—"Fundamentally the movements in the two countries were the same; they were both a part of the great effort of the industrial and agricultural populations to better their social and economic condition through education, and of the ruling classes to build up an intelligent and efficient body of citizens. But in so far as the political and industrial conditions in the two countries were different, the details of the movement varied. In general, it may be said that conditions in America were more fluid because the country was new and the people scattered over a larger territory. Consequently the movement was less fixed and the institutions more varied in character." ²

At no time did these mechanic's institutes have any very extensive development in America as compared with Great Britain. Quite a number of them rose, flourished for a season, and died. Because of peculiarly fortunate circumstances, however, chief of which was generous philanthropy, a few have survived to become permanent institutions. Notable among these are such schools as Franklin Institute of Philadelphia, Mechanics Institute of Cincinnati, and the Maryland Institute of Baltimore. As in the mother-country, some of the early institutes established in the United States had for their chief purpose (and some, for a long time at least, as their sole purpose) the securing of a better education for the children of working people. Usually this took the form of free or cheap instruction in elementary school subjects, but sometimes the attempt was made to devise an improved high school. When public elementary and high schools arose, some of these institutes passed out of existence. Usually those that survived focused their efforts on evening classes and other devices for serving employed adults. ³

The institute vs. the lyceum.—On both sides of the Atlantic, these mechanic's institutes, after they had failed to reach the work-

² C. A. Bennett, *op. cit.*, p. 317.

³ *Ibid.*, pp. 317 ff.

ing classes, were succeeded by other schemes. Because lyceums were less expensive to maintain and could be more easily supported by small communities, these often took the place of the institutes in England. For the same reason the lyceum or public lecture movement had, for its day, an extensive development in this country. Both the institute and the lyceum placed the emphasis on useful knowledge, and both regarded the natural sciences as the best source of such knowledge. While the institute gave its attention to instruction in the sciences as connected with the mechanical arts, the lyceum covered their application to agriculture as well as to industry. While the institute was confined to a few cities, the lyceums flourished for a considerable period in the small towns. The work of the institute was better organized and more systematically conducted; hence, its classes were more expensive to maintain, but on the whole did better work. While lyceums tended to become popular and discursive in the subjects they offered, institutes remained more serious in their purpose. While the latter grew up isolated from each other in a few cities far apart, the former, needing the stimulus of federation by communities, were bound together in a national organization, the American Lyceum, which at one time represented from 900 to 1,000 local centers. Finally, evening classes for mechanics are much more directly traceable to the mechanic's institutes than to the lyceums; consequently we can dismiss the latter from further consideration.

Why did the evening schools of the mechanic's institutes fail to reach the working classes? Generally speaking, the answer would apply equally well to the lyceum movement also, but the discussion will deal only with the former. They failed for all such reasons as the following:

1. *Lack of adequate funds* with which to support, promote, and enlarge the school. These evening schools were private enterprises entirely dependent on membership dues and the support of a few generous individuals like Benjamin Franklin. This poverty affected adversely every phase of the work.

2. *Unsuitable meeting places*, poorly located, lighted, heated, and ventilated, and without any of the facilities and comforts

which even the poorest public evening school of to-day enjoys as a matter of course. While little is said in the records, there can be no doubt but what the physical discomfort of members, particularly in overcrowded rooms, played a considerable part in discouraging interest and attendance.

3. *Lack of adequate instructional material and devices.* By the lecture method, men of some reputation in some field of science poured out a great mass of detailed information together with much unsupported theory and speculation. Virtually the only vehicle of instruction was words. There were, generally speaking, no textbooks, no instruction sheets, no blackboards, no laboratory tables and apparatus, no blue-prints, no charts, no models, no cut-away parts, no slides or films, or any other teaching device than technical words falling on the confused ears of untutored workmen.

4. *Lack of usable subject-matter.*—Science was a new and magical wonder-worker. Dimly at least, the fact was recognized that in time every human industry would be improved and revolutionized in its processes by the application of scientific knowledge to its problems. Very little was then known about science, or about its use, therefore, in the industrial and mechanic arts. It was believed that if all mechanics were taught the general laws of the sciences, they would straightway apply these in their different occupations. General lectures on the general principles of a science would give mechanics and tradesmen functioning subject-matter.

In practice, this did not prove to be true with the members of the institute, the students of its own classes. They failed to grasp much of the abstract knowledge which was broadcast by a dull lecturer, and most of these early teachers of science were certainly dull. Even when these students gained some understanding of any general principle, they could not see what connection it had with their daily work. Certainly the lecturer, having had no experience with their different callings, was utterly unable to show what this connection was. Soon, too, it must have become apparent that there is no fundamental body of scientific knowledge which underlies or is common to all occupations. Just what science, to illustrate, is basic to both the baking and printing trades

in any tangible and usable way no one has ever been able to say. How then can workmen from these two trades be taught, in the same class, usable subject-matter from the sciences?

This brings us to the meaning of functioning (usable) subject-matter as the expression is used in this book. It is the knowledge directly applicable to any occupation which the learner understands and can use to advantage in his work. From the standpoint of this definition, at least, abstract algebra and trigonometry, and dreadfully detailed lectures on natural philosophy certainly did not constitute functioning subject-matter either for all the mechanics and tradesmen of the institute who attended or for those engaged in any given mechanical art.

Unless they are working for credits on a degree, few mechanics will attend instruction in any subject unless it gives them the kind of skill or knowledge they can use in their work. This was just as true of the workmen of the last century. As a device for meeting the needs of the ordinary workman, the courses in general science operated by the mechanic's institute were doomed to failure from the start. This statement is just as true to-day as then: What mechanics demand is helpful knowledge culled from all the sciences which they can apply directly in their own lines of employment—a service that can be rendered to them only by special courses of instruction for each trade separately.

5. *Lack of competent instructors.* From the standpoint of his knowledge of the general science he taught, the typical instructor in the evening school of the mechanic's institute was probably as competent on the whole as most of his fellow-scientists. But he knew neither the interests nor the occupations of the mechanics from numerous lines who sat in his lecture room; consequently he could not make application of the abstract matter he taught to their problems, nor answer in any helpful way questions regarding their work. He did not know how to teach, but only to lecture on his special subject, and there was no supervision of his training as a teacher in service.

6. *No supervision.* Of helpful supervision there was virtually none. The typical evening school of the mechanic's institute was merely a gathering of workmen who on stated nights listened to a

course of lectures by some scientist on his specialty—a task which he proceeded to discharge unhampered and in his own way. “Training of instructors in service” was a phrase which had not even been coined.

7. *Unsound methods of instruction.* There was only one typical method, and that was the lecture. The instructor, if such he may be called, thought out in advance what he was to say and usually committed it to paper so that it could be read. In this way he could cover a great many topics and details. Experience has not only developed a great many other methods and devices of teaching in the industrial evening school, but has also proven beyond doubt that the poorest of them all is the straight lecture plan.

8. *Improper selection of students.* Attendance in the evening school of these institutes was primarily for members, but their public announcements often declared that the lectures “are also open to others.” No attempt was made to accept or reject students for any reason unless it were lack of membership or failure to pay dues. No attempt, moreover, was made to select only those having the mental ability to profit by the instruction. It is significant that the movement for free elementary schools in Philadelphia received its most powerful support from the local mechanic’s institute because “mechanics who attended the lectures did not have enough fundamental education to enable them to get the full benefit of the scientific lectures that were given at the institute.”⁴ There was no segregation or grouping of the students according to ability, or age, or previous schooling, or previous experience. Almost the same conditions would be established to-day if a course of public lectures on physics or chemistry by an eminent authority in that field were offered in any community, and all mechanics and tradesmen from every line, willing to pay a small fee at least, were invited to attend.

9. *Helpful working relations lacking with other agencies.* In the golden years of the mechanic’s institute movement, there was probably a closer and more sympathetic support of the evening school on the part of both employers and workmen than the evening industrial school usually receives to-day. Indeed, that earlier

⁴ C. A. Bennett, *op. cit.*, pp. 319–320.

reverence of tradesmen and mechanics for the new scientific knowledge as a panacea for every ill seems almost pathetic when we realize how little most learners really gained from their attendance.

The movement dies, but lives.—For all such reasons as the foregoing, the mechanic's institute and the lyceum waned until, by the middle of the last century, they had ceased to be important movements in American life. Lyceums of the old type were succeeded by Chautauquas and the popular lecture course. Here and there a few mechanic's institutes which have been endowed remain and are doing good service. As a whole, the importance of the two movements must be measured not so much by what they accomplished for the comparatively small number of persons they served as by their influence on our own times. Both helped to build up "an American ideal of popular education and placed emphasis on acquiring useful knowledge." They laid the foundations for much that we now enjoy in industrial and trade education. Certainly the mechanic's institutes were in a very real sense the prophetic forerunners of our present evening industrial schools.

The Public Evening Drawing School

During the third quarter of the century (1850–1875), the American people were engrossed not only in the civil conflict between the States and the reconstruction problems that followed in its wake, but in the development of a public system of education for children and youth, in their enthusiasm for which the educational needs of adults, particularly of employed workers, were apparently forgotten. Only in a few places was this notion kept alive—usually by the mechanic's institutes that survived.

Germany wakes us up.—When the Centennial Exposition which marked the close of the first century after the signing of the Declaration of Independence was held at Philadelphia in 1876, the industrial and educational exhibit of the German government made a profound impression. The amazing progress which the Germans had made in the application of science and invention was shown side by side with charts and graphs that pictured the corresponding victories which the products of their workshops had won in the markets of the world. Particularly were visitors struck by the

use which had been made of drawing in this industrial program, and by the amazing development of education in that subject by the German schools.

As a result, there arose in the industrial States of this country a pronounced movement which caused the introduction on a considerable scale of drawing in the regular schools, particularly in the secondary schools, and in the establishment of a considerable number of public evening drawing schools. In Massachusetts, these evening schools of local communities were encouraged by State legislation. By the opening of the present century, however, this evening school movement had spent its force, and the typical evening drawing classes of that period had almost disappeared even in our most prosperous manufacturing cities. Doubtless these schools helped to pave the way for later efforts, but we are here primarily concerned with the causes of their decline, the lessons to be gained from their experience.

Isolation from real industry.—Most conspicuous by its absence perhaps was the lack of helpful working relations with other agencies. The typical evening drawing class of the period was a sadly isolated enterprise. Formal notice was usually given in some way that such a class would be held on specific nights for those who desired to attend. Usually no attempt was made to learn what were the real demands of local occupations in the use of the subject. No particular support or help from employers and workmen was asked or expected. Indeed, in this early contact between public school officials and the industrial life of the community, the former, generally speaking, felt that they were providing instruction in a general subject good for everybody, and needed no advice from practical men as to what should be taught or how it should be taught. Then, too, "the less interference the better." On the other hand, employers and workmen left the schoolmen to their own devices and resources because, the official responsibility having been delegated, the safest plan was to "let George do it."

Evil results of isolation.—From this isolation came in large measure the weaknesses that caused the failure of the plan to which so many had looked forward with high hopes. Out of contact with the real conditions and demands of industry the school-

men devised a basic course in drawing for everybody, which they proceeded to formalize in every possible way. Broadly, this standardized training consisted of long practice in lettering, in tracing from the lettering on drawings of others, in copying the drawings of others, and in the execution of geometric designs. Free-hand sketching was almost unknown, the use of models was almost unknown, and so was drawing from real machines or tools. Usually this course was given by an instructor who taught precisely the same things to the boys of the regular high school of the same community. Almost always he had learned what he knew about drawing in a normal school. Naturally enough, he proceeded to put all his evening school pupils through just what he had himself been taught.

These mechanics had been told that this training in the principles of drawing and design would greatly help them in their trades. They needed the help of drawing that could be used as a tool in trade; what they received was a series of formal exercises designed to prepare teachers of drawing for giving instruction in these exercises to high school boys. Almost all of these workmen needed to use the drawings of others—needed to be taught how to read drawings rather than to execute them; instead they were told that if they became good draftsmen they would know how to do this. They needed to be able to make rough sketches which pictured their ideas on paper about shop problems; instead they were told that if they became skilled in the mechanism of conventional drawing, they would know how to do this.

There should be no misunderstanding here. Undoubtedly a few mechanics having special interest and ability in drawing and desiring to qualify themselves as draftsmen or designers did receive a great deal of benefit from these evening classes. Undoubtedly there is a place in every evening industrial school program for courses in mechanical and architectural drafting—courses for those persons who are able to profit by the training and are willing to devote the time necessary to acquire a marketable asset in the art. So far, however, as improving the use of drawing in the shop by the ordinary mechanic or foreman went, the total results of these public evening schools in drawing

were almost negligible. True as this statement is, there are still evening schools in this country which insist that the only way to help a mechanic to understand and use drawings in his work is to teach him either mechanical or architectural drafting. Other evening schools know better. They teach him how to interpret and apply because that is the real demand on him in his bread-winning.

History repeats itself.—All the reasons recited above for the failure of the evening industrial school in mechanical science help to explain the sad failure of these evening drawing schools to reach and serve the real needs in that subject of the American mechanic. While the subject was different, and public control and support had succeeded private effort, there was still the sad lack of all such things as adequate funds, suitable quarters, proper instructional material and devices, usable subject-matter, competent instructors, effective supervision, and sound methods. The work also suffered from poor organization of its administration, lack of efficient organization of courses, and ineffective methods of getting and holding students.

When the movement for public evening schools in drawing went to pieces on the rocks and shoals of formalism and academic notions, the idea was kept alive here and there in a few public school systems and by private schools of various kinds, largely under the leadership after 1905 of the National Society for the Promotion of Industrial Education, whose efforts culminated in the passage of the Vocational Education Act, commonly known as the Smith-Hughes Act, twelve years later (1917).⁵ Many contributed to the work of this society, but the largest meed of credit goes to the unselfish and wise leadership of C. R. Richards, at that time director of Cooper Union.

As early as 1910, State systems of vocational education were established providing State aid and supervision for local communities in the operation of industrial schools, including evening schools. After the adoption of the Vocational Education Act, every State in the Union made some provision for the use of federal funds to stimulate local communities in this work. As a result,

⁵ See Chap. XXI, "The Federal Government Takes a Hand."

the last decade witnessed a pronounced movement for public evening industrial schools for employed people, most of them State and federally aided and modeled along the lines of the requirements of the Smith-Hughes Act. At the same time, there has been a corresponding increase in the number and enrolment of evening industrial classes operated by private schools and by corporations. With all these current evening extension classes in the industries and trades this book is concerned.

Conclusions

No one can study all these earlier efforts to provide helpful instruction for the industries and trades without concluding that any evening school, if it is to be successful in reaching and serving the mass of ordinary mechanics in any community, must somehow meet these essential conditions:

1. There is a minimum standard of decent and proper working conditions below which the quarters in which instruction is given and the equipment of those quarters must not be allowed to fall.
2. There is a minimum standard of proper instructional material and devices below which the school cannot fall without defeat.
3. There is a minimum standard of helpful working relations with other agencies of a given community below which the school cannot succeed.
4. There is a minimum standard of cost per student hour including overhead, below which the evening school of a given community will find itself spending funds without corresponding returns in educational results.
5. There is a minimum standard of system and planning in the administration of an evening industrial school below which continuous success cannot be secured.
6. There is a minimum standard of supervision of the service, including the improvement of teachers, below which efficient instruction cannot be maintained.
7. There is a minimum standard in the previous occupational experience and ability of the instructor below which any

class can neither retain the respect of mechanics nor equip them with reliable and usable skill and knowledge.

8. There is a minimum standard of common experience, common interest, common ability to understand, and common opportunity to apply what is taught in any evening class below which no member of such a class can be admitted without the waste of the funds of the school, the time of such a learner, and the discouragement of such a learner.
9. There is a minimum standard of usable or functioning subject-matter taught in any course below which most mechanics at least will not regard it as profitable to attend.
10. It will probably never be possible to state these minimums quantitatively or standardize them on any country-wide basis, but they certainly exist in every evening industrial school. It is the business of the administrator of the school to determine what these minimums are and to see that they are secured as the first step in his program. All the ground he can win above any given minimum will improve the efficiency of the service and the progress of the school as a community enterprise. Finally, it should be recognized that no school which simply met the foregoing minimums and no more would ever get very far.

Through all the vicissitudes of its past, the evening industrial school has survived. To-day it is, in point of number reached, the most extensive service now provided for trade and industrial education, and it has been growing more rapidly in enrolment than any other agency in this field of training. That it has a distinct place as a permanent institution which no other agency can fill is shown in the next chapter.

QUESTIONS

1. Discuss this proposal. There is great need in every evening industrial school for a course in science open to mechanics employed in all lines of industry.
2. Discuss this proposal. There should be a general course in the fundamentals of drawing, and every mechanic attending the evening school should be required to take this course as a basis of all the other training he receives.

3. Why not operate the evening industrial school on the policy that, while the instruction in each course is designed for the benefit of employed mechanics in some trade or line of employment, the course is also open to all others who care to attend?
4. Discuss this proposal: There should be a general course in mathematics (algebra, geometry, or trigonometry) in the evening school which every student should be required to take as fundamental to further instruction in the skill or knowledge of his trade or line of employment.
5. Compare the modern lyceum movement with the modern evening industrial school as to all such things as aim or objective, subject-matter, courses, types of students, motives of students, selection of students, methods of instruction, place of meeting, equipment, organization, and support.

CHAPTER II

THE ECONOMIC CASE FOR THE EVENING INDUSTRIAL SCHOOL

This chapter undertakes to answer two questions: 1. Why should there be evening industrial schools for employed workers? 2. Why should such schools be maintained at public expense? The answer to the first question is best furnished by a description of the industrial conditions which have made this necessary.

For the discussion which follows we are indebted to the book entitled *Vocational Education in a Democracy* by Prosser and Allen. Most of the following is quoted from that book, and the reader is strongly urged to read the following chapters in it: Chapter II, "The Economic Theory of Vocational Education"; Chapter IV, "The Iron Man"; Chapter VII, "The Training and Direction of Ability"; and Chapter XV, "Getting the Job Done."

Science and invention constantly revolutionize industry.— "Few people realize the extent to which the progress of science and invention is resulting in the development of new technical knowledge and the replacement of old kinds of skill by new. To a certain extent most of us in our thinking with regard to this matter are still living in the past. In the days of apprenticeship under the guild, the operations and processes, as well as the tools and mechanical appliances used, remained practically the same. Under these conditions, the master workers could impart to the apprentice the technical knowledge and skill required in a leisurely, and, on the whole, in a very satisfactory manner, because this knowledge and skill were not only very simple but were for the most part uniform and fixed.

"We are very apt to think, subconsciously perhaps, that this condition still exists, and conclude that the same methods of training will give equally satisfactory results. Nothing could be further from the truth. Under modern conditions the whole matter of production has become subject to the same flux which char-

acterizes the social life of a democracy. New skills are continually required to meet the operating conditions of new machines. New scientific discoveries involve the acquisition of new technical knowledge. Old skills are continually being discarded; old technical knowledge no longer serving its purpose must be replaced by new. The linotype operator and the hand compositor have little in common in their skill and technical knowledge; the monotype caster has virtually nothing in common with either the compositor or the linotype operator; while the multigrapher has little to do with any of the others. In terms of knowledge and skill, what is there in common between the operator of an old Franklin press and the pressman on a modern speed newspaper press?"¹

Sweeping industrial changes make corresponding demands on workers.—"The sweeping change in the demands of modern production has brought with it the need on the part of the worker both for quicker adaptation to a job or process and for what might be called constant readaptation to the demands of new jobs. Slow methods of training must give place to rapid training. With the call for rapid adaptation and for continuous readaptation and with the large scale production which makes the efficiency of the worker much more vital than under simple conditions, the pick-up method, even for the ordinary workman, no longer meets the situation. More and more this method must be supplanted by better organized and more systematic ways of conferring both skill and knowledge."²

Skill and knowledge must be made available rapidly.—"The old apprenticeship plan was probably on the whole well suited to the conditions of a simple society in which the assets of a worker were handed down from one generation to another, man to man. It failed utterly to meet the conditions of modern life where the problem has become largely that of starting and spreading knowledge and skill constantly arising from the progress of discovery and invention.

"This imperative need for the rapid diffusion of new skill, new

¹ C. A. Prosser and C. R. Allen, *Vocational Education in a Democracy* (The Century Co., 1925), pp. 23 ff.

² C. A. Prosser and C. R. Allen, *op. cit.*, pp. 24-25.

knowledge and new job intelligence which confronts society in our day is due to a number of causes: First of all, the large numbers of persons employed in every line, as contrasted with the isolated craftsman of a simpler society, make necessary the spread of any new invention or process over a great group of workers. The wide areas in which these workers are employed again presents the problem of wide distribution. The constantly growing body of information and the resulting shift in tools and machines and processes going on in every industry create corresponding needs for help on the part of literally millions of producers. Finally, our modern means of rapid communication makes it possible for us to diffuse this help effectively. It requires only organized vocational education to insure that this assistance is given in a systematic way whenever and wherever it may be needed.”³

Corresponding differences between requirements for old craftsmen and modern workmen.—“1. The work performed by each individual has become more and more important and its efficient performance correspondingly so.

“2. The shift is away from mediocre performance of most jobs to the highest possible efficiency in every job.

“3. The modern demand upon every worker in every occupation is for specific efficiency in the specific occupation.

“4. The shift in this demand for specific efficiency in the performance of all work is, in general, away from purely mechanical to technical demands.

“5. The shift is away from manual dexterity and skill toward the exercise of specific job intelligence in the specific occupation.

“6. The shift is away from a training content for a few jobs to a specific training content for every job.

“7. This specific training content, whether it be small or large for different occupations, is vital to the specific efficiency of any modern worker in any specific occupation.

“8. The specific training content may be given in various ways, but whatever scheme is employed constitutes vocational education.”⁴

³ C. A. Prosser and C. R. Allen, *op. cit.*, pp. 27-28.

⁴ *Ibid.*, p. 80.

The need for pusher education.—"1. Discovery and invention are constantly producing new machines, new devices, new processes, to which old as well as new workers must be adapted and about which they need to be informed.

"2. Science and practical experience are constantly increasing the body of technical information and trade knowledge in every occupation, a usable and functioning understanding of which is necessary to efficient work.

"3. In the flux of modern industrial life, workers both old and young are required constantly to adapt themselves to the demands of constantly changing old occupations and of entirely new occupations, demands which create a corresponding need and right to help in meeting them through opportunities for systematic emergency training when needed.

"4. Constantly rising standards of efficiency in the performance of the duties of every occupation are constantly imposing higher requirements upon all workers in every occupation. These requirements they cannot meet by the pick-up method but only by organized instruction direct in its aim and methods and opportune in its emergency service. This applies both to training in operations on the job and to classroom instruction." ⁵

Climbing stairs in industry.—"It has also been pointed out that men rise through any line of industry from one specialized employment to another, step by step, largely in the same way that a child learns to climb from one step or tread to another. Each job in the line that he holds gives him some experience as an aid to promotion, but the next job makes some additional or special demands requiring skill or knowledge which he must get.

"Again, vocational education should serve as the emergency device by furnishing him quickly and directly with what he wants as an aid in his next advance. As the movement for efficiency in the use of human effort has progressed, it has brought in its wake the subdivision of tasks, the specialization of employments, and large scale production of which we will doubtless have still more rather than less. As occupations have tended to become less general and more and more differentiated and specific, the de-

⁵ C. A. Prosser and C. R. Allen, *op. cit.*, pp. 84-85.

mands for skill and knowledge have become immediate, direct, and very specific. Only as vocational education adapts itself to these conditions will it be able to function as a real service to productive workers, and, it may be truthfully said, will workers avail themselves of this service. Their test is the very practical one: Will what you offer to give me really help me in my present job or the one I want to get?"⁶

An explanation for some things.—"All these considerations explain why the traditional four-year apprenticeship courses for prospective journeymen so earnestly offered by trade schools a few years ago have virtually become obsolete; why the general evening class giving full or complete courses in mathematics and drawing to tradesmen has been supplanted almost everywhere by short direct unit courses, each dealing with some unit phase of the subject; and why these unit courses are offered tandem style one after the other so that the worker student may take only one or more of such courses as he needs or may take them all. When for example, a two-year evening course for garage men was established ten years ago, it advertised instruction in one long course for automobile repair work. Now it advertises unit courses in frames and axles, gears and transmissions, carburetors, gasoline engines, ignition and magnetos, starting and lighting."⁷

A summary of the foregoing discussion is furnished by the chart on the following pages.⁸

The place of the evening industrial school.—If the foregoing statements and analyses are sound then, these conclusions would seem to follow:

1. For the great mass of employed workers in productive occupations, the greatest need is for help in meeting present and changing demands of the occupations and lines of employment in which they are engaged.
2. Men in any industry are promoted step by step and at irregular intervals from one job to another. Their need at any given time, therefore, is the specific instruction which will

⁶ C. A. Prosser and C. R. Allen, *op. cit.*, pp. 169-170.

⁷ *Ibid.*, p. 170.

⁸ *Ibid.*, pp. 29-31.

CHART I
CHANGING CONDITIONS AND PROBLEMS IN VOCATIONAL EDUCATION

<i>Item</i>	<i>In the past</i>	<i>Now</i>
1. Fundamental basis of skill and knowledge	Tradition and custom	The development of science and invention
2. Kind of occupations	General and standardized	Special and diversified
3. Number of occupations	Few	Many
4. Kind of tools and appliances	Simple and uniform	Complicated and diversified
5. Changes in tools and appliances	Few and slow	Many and frequent
6. Use of old skills	Retained and perpetuated	Discarded and replaced by new
7. Use of old technical knowledge	Preserved and revered	Abandoned and supplanted by results of new discoveries and inventions
8. Use of new skills	Seldom called for	Constantly required
9. Use of new technical knowledge	Infrequently or slowly discovered and applied	Constantly and rapidly developed and applied
10. Kind of skill and technical knowledge	Simple and static	Complex and rapidly changing
11. Changes in skill and knowledge	Few and slow	Many and rapid
12. Amount of skill and knowledge used	Little in variety and degree	Extensive in both
13. Changes in occupations	Negligible	Many and frequent
14. Need for rapid transmitting of skill and knowledge	None	Continuous and often urgent
15. Methods of transmitting skill and knowledge	Man to man	Many—school only one
16. Need of adapting worker to job	Yes, but only once	Yes—many times during his productive life
17. Need for readapting worker to job	Little or none	Yes, many times

CHART I—*Continued*
CHANGING CONDITIONS AND PROBLEMS IN VOCATIONAL EDUCATION

<i>Item</i>	<i>In the past</i>	<i>Now</i>
18. Total number of workers	Small	Millions
19. Number of occupational groups	Few	Many
20. Diversity of groups	Little	Wide
21. Geographical distribution of workers	Over small areas	Over vast areas
22. Rapid means of communication	None	Many and efficient
23. Wide diffusion of skill and knowledge	No need or possibility	Greatest need and possibility
24. Old apprenticeship an effective device	Yes, where used	No—except in a few lines
25. Reducing time required to train new workers	Opposed as unnecessary—inadvisable	Constant effort to do this
26. Use of pick-up method of learning	Fairly successful in primitive society only	Failure under modern conditions
27. Manner of training	Leisurely	Quick
28. Need for organized training	Yes, but not realized except in old apprentice shop	Yes, with increasing recognition
29. General trade training	Yes, for the old trades	No, for most occupations
30. Specialization of worker	None	Much
31. Training of workers once for all in youth	Sufficient	No, for most occupations
32. Training of workers by small increments during life	No	Yes, for most occupations
33. Kind of apprenticeship required	Old apprenticeship	A new apprenticeship needed

CHART I—*Continued*

CHANGING CONDITIONS AND PROBLEMS IN VOCATIONAL EDUCATION		
<i>Item</i>	<i>In the past</i>	<i>Now</i>
34. Shifting of workers from one occupation to another	Little	Much
35. Trade or industrial analysis necessary	Not for simple standardized trades	Much needed to determine training needs
36. Occupational analysis necessary	No. Occupations in general standard trades	Many occupations—all requiring knowledge of training needs and job demands
37. Training of youth necessary	Yes, as adaptation for fixed trades	Yes, as adaptation to constantly changing occupations
38. Training of adults necessary	No, because readaptation rarely necessary	Yes, both for adaptation and readaptation
39. Training needed before employment	None	Some, but no solution of mass problems
40. Use of the school for training	None	Increasing
41. Part-time extension classes for youth	Not needed and unknown	Greatly needed and slowly coming
42. Evening school for readaptation of adults	Not needed and unknown	Greatly needed but sadly inadequate
43. Training given by occupation or trade	Entirely	Very inadequately
44. Function of the school	None	To supplement the occupation as a training
45. What training best given by the school?	None	Related technical knowledge and intelligence in its application

either help them directly on their present jobs or aid them in meeting the requirements of the next job ahead.

3. No other educational agency is so well adapted for rendering this kind of educational service as the evening industrial school, if it will meet the conditions.
4. The mass need is for the extension of the previous skill or knowledge of employed workers; hence the typical evening industrial school will, in our opinion, always be an extension school and not a preparatory school for novices.
5. Doubtless there are some jobs highly specialized in character for which the evening industrial school can give, in the limited time available, the skill necessary for entrance to some industry. But the industry can do this better than the school, because it is better equipped for the task; therefore we believe that, for the present at least, this task should be left to industry, leaving the evening industrial school to serve workers after they have entered upon employment.
6. No evening industrial school can, generally speaking, ever be equipped with the machines and tools and other equipment with which to give workmen skills in new processes for their present jobs or in new jobs within their present lines of employment. While this admittedly can be done to some extent in a few lines, such as the machine-shop with its standardized machine-tools, the number of such lines is very few, comparatively speaking.
7. If this be true in the coöperation between industry and the school, it is the business of the school to give its students the usable knowledge and practice in thinking with that knowledge which will help them to advance their skill and resourcefulness in the performance of the job. Industry for practice and the school for functioning knowledge which will interpret and improve the practice!
8. While there is probably a place in every large evening industrial school for general or long courses in different lines, most workmen want the short-unit courses which will give them the direct help they need now. Only by such courses will the school meet the emergency character of the demand,

which so frequently presses on the ambitious workman in all lines of productive employment.

9. To meet the larger needs and capacity of more ambitious and capable workmen, these unit courses should be so organized and scheduled that such workmen may have the opportunity, by taking all of them, to complete, in what we regard as the most effective way, a general course in their respective lines.
10. It is obvious that these unit courses must be set up separately for each trade or line of employment if they are to meet the real demands for help of workers.
11. To serve as a pusher or emergency service, the evening industrial school must be ready at all times to organize new unit courses to serve new industries or new demands of old ones.
12. In addition to their stated or standard set-up of unit courses at any given time, the school should also be ready at any time to provide any new unit course for which at least a minimum number of workers have asked who need it and are able to profit by it.
13. When the evening industrial school undertakes to provide usable or functioning subject-matter for a constantly changing industrial world, there can be no such thing as a standardized course of any kind which never changes. On the contrary, all courses from year to year must be constantly adapted to the changing conditions and demands and kept in a state of constant flux and revision.
14. Some one has aptly said that the purpose of the evening industrial school is to find and serve groups of employed workers having common needs.
15. If the foregoing conclusions are sound, it would seem that the evening industrial school is neither a fad nor a fancy, but a serious business which should be conducted in a business way.

QUESTIONS

1. Does the discussion in this chapter of the changing job and the changing demands on the worker point to the need for short or long courses in the evening industrial school for employed students? Why?

2. Discuss this thesis: The solution of the need for the industrial education of workers is to give each of them a complete four-year *training* for some trade before he enters employment.
3. Discuss this thesis: The solution of the need for industrial education is to have all young wage-earners go directly from regular schools to work, but to require by law that each of them shall attend a part-time extension trade-school for at least four hours per week and for not less than four years.
4. Discuss this thesis: The solution of the need for industrial education is to have workers go from regular schools to employment and to give them opportunity to get, after they become sixteen years of age, the help in skill or knowledge they need, whenever they need it, through short courses in the evening school.
5. Assuming that during his lifetime every workman can have 1,000 hours of school instruction, and no more, in the skill and knowledge he needs for wage-earning, how would you distribute this allotment of hours to the best advantage?

CHAPTER III

THE EVENING INDUSTRIAL SCHOOL AS A BUSINESS

Throughout this book, emphasis is placed on the fact that, for many different reasons, the evening industrial school is a business—a business conducted for the purpose of meeting a demand of customers, of producing an output in better workmen, of getting a social job well done. Always this school should be regarded as a business and subject to the same general laws, the same general principles, the same general procedures as other business enterprises. To one who has never thought about the matter, the resemblances between other kinds of productive business and the evening industrial school are very convincing. This is illustrated in the chart on the following pages.

Immediate vs. deferred dividends.—There is only one point, apparently, on which a pronounced difference seems to exist between a manufacturing business and the typical evening industrial school. The former is operated for the purpose of making a financial profit, while the latter is not. This difference would be removed if the evening industrial school were maintained by a group of stockholders for the purpose of getting a money return on their investment in the enterprise. In reality, few such evening industrial schools exist. Most schools are operated on a social welfare basis rather than a financial one, but their purpose is to make future dividends for the community in more efficient workmen—workmen who, because of their greater wage-earning power, steadier employment, and economic advancement, will maintain higher standards of living for their families and contribute, in countless ways, to better citizenship. In still another way the community enjoys a return on its investment in the greater commercial prosperity of any center whose workmen are well trained. From this angle, the difference between a manufacturing business operated by a private corporation for profit and an evening in-

CHART II

COMPARING A MANUFACTURING BUSINESS WITH THE EVENING INDUSTRIAL SCHOOL

A manufacturing business

1. The business produces a product in goods.
2. The business must be efficiently organized to produce results.
3. There must be a demand for the product.
4. There must be customers for the product.
5. Before starting the business, this demand should be assured.
6. There should be a preliminary survey (study) to determine the demand.
7. This demand should be sufficient to justify the company in producing the article.
8. The goods (article or articles) must be determined which will satisfy the demands of customers.
9. A competent superintendent, assistants, and workers must be selected to turn out the product.
10. All the members of the working staff must be trained to do the special jobs they perform.
11. There must be a plan laid out for operating the plant and for meeting every main feature of the work.

The evening industrial school

1. The school produces a product in a better trained workman.
2. The school must be efficiently organized to produce results.
3. There must be a demand for the product in instruction, in better training.
4. There must be customers for the product—students and, in the background, jobs.
5. Before starting the school, this demand should be assured.
6. There should be a preliminary survey (study) to determine this demand.
7. This demand should be sufficient to justify the school in providing the service (instruction).
8. The courses of instruction must be determined which will satisfy the demands of students.
9. A competent director or department head, assistants, and instructors must be selected to turn out better trained workmen.
10. All the members of the evening school staff, including instructors, must be trained for the jobs they perform.
11. There must be a plan laid out for operating the school and for meeting every main feature of the work.

CHART II—Continued

COMPARING A MANUFACTURING BUSINESS WITH THE EVENING INDUSTRIAL SCHOOL

A manufacturing business

12. There must be standards for the article produced and for the performance of each job.
13. If different products (articles) are to be produced, then there must be different materials, machines, processes, and the like for doing this. Special treatment for special products.
14. As the business is organized and equipped to turn out a specific product or products, it must leave to other agencies all other products.
15. There must be specifications which will insure the right kind of raw material for the product.
16. Business must be so organized that orders for the product can be met at any time.
17. Hours and seasons of operation of the plant must be such as will best produce successful results.
18. Business requires suitable buildings and adequate floor-space.
19. Business requires adequate building facilities, in lighting, heat, ventilation, comforts, safety, and the like.
20. Business requires suitable plant equipment.

The evening industrial school

12. There must be standards for the service rendered and for the performance of each job.
13. For different groups having different interests, needs, abilities, and experience, different courses of instruction must be provided. Special courses and methods for special groups.
14. As the evening industrial school is organized and equipped to render a specific service—the extension of the skill or knowledge of workmen in a given field of employment—it must leave to other agencies the task of meeting other aims of students.
15. There must be entrance requirements which will insure the right kind of raw material in the form of students able to profit by the instruction.
16. School should be so organized that orders for its service will be met at any time.
17. Hours and seasons of operation of the evening school must be such as will best produce successful results (when can students come?).
18. So does the school.
19. So does the school.
20. So does the school.

CHAPTER II—Continued

COMPARING A MANUFACTURING BUSINESS WITH THE EVENING INDUSTRIAL SCHOOL

*A manufacturing business**The evening industrial school*

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| <p>21. Business requires conditions under which workers can produce the product efficiently.</p> <p>22. By making a good product and by advertising and the like, the demand for the product is increased.</p> <p>23. Business takes and fills orders for the product.</p> <p>24. Business employs salesmen to get and hold customers.</p> <p>25. Workers are expected to turn out a given number of articles (product).</p> <p>26. Numerous processes are used in completing any product (article), and different processes for different articles.</p> <p>27. When any special product is made to order specially, it requires special treatment.</p> <p>28. Workmen must be equipped with the kind of tools with which they can turn out the product at a low cost and conserve the worker.</p> <p>29. For the same reason, all tools must be kept in condition.</p> <p>30. Business must keep accurate and complete records of orders from customers and the filling thereof.</p> | <p>21. School requires conditions under which instructors can efficiently teach students.</p> <p>22. Likewise with the school.</p> <p>23. School registers students and sends them to classes for instruction.</p> <p>24. The salesmen of the school are all those, from clerks to instructors, who deal with students</p> <p>25. Instructors are expected to secure good results with a maximum number of students.</p> <p>26. Different forms of instruction must be given to secure results (shop courses, conferences, class discussion, demonstrations, talks, drawing, and the like).</p> <p>27. School must give special treatment to the special cases of individuals.</p> <p>28. School must be equipped with the proper instructional material and teaching equipment so that it may secure the best possible results from every hour of teaching time used, and so that the morale and energy of instructors and students may be conserved.</p> <p>29. Likewise with the school.</p> <p>30. School must keep accurate and complete records of its students and their work.</p> |
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CHART II—*Continued*

COMPARING A MANUFACTURING BUSINESS WITH THE EVENING INDUSTRIAL SCHOOL

*A manufacturing business**. The evening industrial school*

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| 31. Business must keep accurate records of production and production costs. | 31. So should the school. |
| 32. There must be a careful budget made in advance which will definitely set the maximum amounts to be expended by different departments and activities of the business. | 32. This is just as necessary in the school. |
| 33. There must be plant supervision and production improvement. | 33. There must be school supervision and teaching improvement. |
| 34. Every business gives an accurate accounting of its work to its stockholders. | 34. So should the evening school inform the public. |

dustrial school maintained by the public is not one between dividends and no dividends, but between immediate or direct dividends on the one hand and deferred or indirect dividends on the other.

It is these more or less intangible and difficult-to-measure dividends or returns from the evening industrial school which deprive it of the always active spur back of any manufacturing business. In the background, the stockholders of the latter are always ready to raise a disturbance when dividends are cut, when receipts fall off and costs rise, or when the price of their stock in the market drops. All these matters are very concrete, they are easily measured; and more important still, they directly affect the pocket-book of every stockholder. Consequently, the demand for greater efficiency is incessant. Reduction in cost of production either through making a better article for the same outlay or the same article at less expense is the aim of the plant. Men are measured, retained, removed, given increased or decreased wage, and promoted or demoted, accordingly as their work aids or hinders the plant in this battle. This is not so with the evening industrial school, whose stockholders are the citizens of the community.

In larger centers, many citizens probably do not know that such a thing as evening industrial schools exist, in spite of the widest and shrewdest publicity. Most of them lack any motive which would create any particular interest in the kind of work the school is doing or the kind of product it produces. Furthermore, there is almost an entire absence of any direct financial stimulus, if such it may be called, on those responsible for the management of the school. Some schools are wise enough, of course, to arrange a schedule of salaries for instructors which increases their hourly rate of pay annually or according to the improvement in their service. Even here the maximum is reached in a few years at the most. At the best this is precisely what happens also to the director of the school and his assistants, whatever their respective titles may be.

Stimulating the evening school.—Under these conditions, the spur—the urge—for continued improvement and expansion of the service of an evening industrial school must be of quite a dif-

ferent character from that which characterizes a manufacturing business. This stimulus on the evening school for better and still better work must come from all such sources as these:

1. The active interest and helpful criticism of employers, and particularly of associations of employers, who are the consumers of the product in better trained workmen turned out by the school.
2. The active interest and helpful criticism of associations of workmen who are, or should be, vitally concerned with the improvement of the occupational skill and knowledge of their members and, as far as that is concerned, of all workmen.
3. The criticisms and suggestions of the students of the school itself, which should be invited and carefully considered. They have taken what the school offers and have checked this against the demands they must meet; therefore, they have direct information no one else can give.
4. The increase or decrease in the demand for the service of the school, one of the surest indications as to whether the service satisfies the demands of customers.
5. An interest on the part of the board, public or private, primarily responsible for the success of the school. This interest should be coupled with an intelligent understanding of what the school aims to do and a determination to have this aim accomplished, not in a half-hearted way, but in a way that will yield the largest possible returns on the investment.
6. An interest on the part of those school officials under whom those directly responsible for the evening industrial school carry on their work. This interest should be coupled with such an understanding of its objectives, problems, and methods as will enable such officials to exercise an efficient supervision of the school. In the discharge of their responsibility, they should not only visit but inspect the work, detect weaknesses and shortcomings, coöperate with the director and his staff in finding remedies, and support plans for making them.

7. When all the above has come to pass, however, the fact still remains that the chief stimulus must be internal and not external. It must come from the interest and the drive of the evening school staff.

In various chapters of this book, the first six of the foregoing stimuli or moving causes of efficiency in the evening industrial school will be discussed. The internal stimulus described in item 7 above must be furnished by those who run the school. As has already been pointed out, however, this does not depend very much on any financial motive. Here and there, it is true, by a conspicuously successful piece of work, the director of such a service is rewarded by some gratifying promotion. But never just because he cut student-hour costs a total of two cents! The real urge upon the director and his staff, the moving cause for earnest service, high endeavor, and continual improvement must come from a deep interest in the aims and opportunities of the school; an unfaltering devotion to a great cause; a workman's pride in a piece of work well done; a quickened sense of responsibility for the welfare of working people; an equally quickened sense of responsibility for the efficient use of public money or private philanthropy in helping men to help themselves; and a recognition of the value of business principles and businesslike procedures in the operation of the evening industrial school as a business.

In closing, it may help the reader in his thinking if the contents of this chapter are tied up or reconciled with those of Chapter V, "Success Factors in the Evening School." Perhaps the best way to do this is to restate here those success factors and show how the business principles and practice described in Chart II of this chapter are simply more detailed aspects of different efficiency factors. The numbers in the second column of the following chart refer to the corresponding numbers of these business principles and practices in Chart II above.

Since the chief concern of any business is the adaptation of its goods or its service to the customer, the main consideration of the evening industrial school is the evening school student, who he is, what he wants, and how he can best be reached and served—matters which are discussed in the next chapter.

CHART III

EFFICIENCY FACTORS AND BUSINESS PRINCIPLES FOR THE EVENING INDUSTRIAL SCHOOL

<i>Efficiency or success factors</i>	<i>Corresponding business principles and procedures (see Chart II)</i>
I. Efficient organization	I. Nos. 2, 9, 11, 12, 16, 17, 23, 24, 30, 31, 32
II. Helpful relations with other agencies	II. Nos. 3, 4, 5, 6, 7, 34
III. Suitable buildings	III. Nos. 18, 21
IV. Adequate equipment	IV. Nos. 19, 21, 28, 29
V. Functioning subject-matter	V. Nos. 2, 3, 5, 6, 7, 8, 13, 14, 15, 21, 23, 25, 26
VI. Effective organization of subject-matter	VI. Nos. 2, 11, 13, 21, 25, 26, 28, 29
VII. Adequate instructional material and devices	VII. Nos. 21, 26, 28, 29
VIII. Competent instructors	VIII. Nos. 9, 10, 12, 21, 25, 26, 33
IX. Effective supervision	IX. Nos. 2, 9, 10, 12, 13, 21, 25, 26, 28, 29, 33
X. Proper selection and admission of students	X. Nos. 3, 4, 5, 6, 7, 8, 11, 12, 13, 14, 15, 16, 17, 21, 22, 23, 25, 27, 30
XI. Successful methods of getting and holding students	XI. Nos. 3, 4, 5, 6, 7, 8, 11, 12, 13, 14, 15, 16, 17, 22, 23, 24, 27, 34
XII. Sound methods of instruction	XII. Nos. 12, 13, 21, 25, 26

QUESTIONS

1. In what respects do business and the evening school have the same general kind of problems on their hands with regard to customers?
2. In what respects do they have the same general kind of problems on their hands with regard to the administrative force and the working force of employees?
3. In what respects do they have the same general kind of problems on their hands with regard to costs?
4. Compare the kind of stimulus under which business operates to make profits in dollars with the stimulus under which the evening school operates to produce results in better trained men at a minimum of cost.
5. Choose any ten of the following twelve efficiency points and rate your own evening industrial school or one with which you are familiar: Points from the last column of Chart No. II above, numbered as follows: 8, 9, 10, 11, 12, 13, 14, 15, 16, 26, 27, and 28. On each point of the ten rate the school on a scale of ten.

CHAPTER IV

THE EVENING SCHOOL STUDENT

Like any other business, the evening industrial school must know its customers if it would serve them successfully and efficiently. In this chapter we have endeavored to give a sort of composite picture of the typical student who attends this kind of a school. Before doing this, the reader is reminded of certain things brought out in previous chapters. We are here only concerned with persons of legal evening school age. In some States the attendance on evening instruction of youths under sixteen years of age is forbidden by law. Admission to evening industrial schools under the Vocational Education Act is restricted to persons over sixteen years of age, but there is no top limit on this requirement. In reality few attend under eighteen, and the average age is somewhere around twenty-five. Only with mature people, therefore, does the evening school deal—with people who, as we shall see, attend for a very definite purpose. That purpose is to extend their skill and knowledge in some occupation or line of promotion so as to increase wage-earning or attain promotion. About this kind of people and this kind alone we are writing. The significant characteristics of the group can all be classified under these topics: maturity, motive in attending, individual vocations, point of view (attitudes), inhibiting factors which present difficulties in teaching them, and their learning ability.

Maturity.¹—While there is no top age-limit, the bulk of evening school students are from twenty to thirty years old. Beyond the age of thirty a considerable number of persons will attend who did not recognize their need of or opportunity for training earlier in life. All students have three things in common: physical maturity; mental maturity; and previous experience as wage-earners in using

¹ We are indebted for much of the material in this section on Maturity to the Report on Adult Education of the American Vocational Association, 1927.

skill and knowledge to accomplish things on the job. So far as physical maturity is concerned, it may be dismissed here with the statement that the typical evening school student has completed his physical growth and is therefore physically able to perform, according to a man's standard, the operations of productive jobs. Perhaps the best way to present his maturity of mind is to compare the evening school man with himself when he was an adolescent:

CHART IV

COMPARING THE ADULT STUDENT WITH THE ADOLESCENT

1. He has more education, if we mean by education training in thinking about the problems of his daily life, including those of his job, and in solving these problems.
2. He has a correspondingly greater development of habits (methods) of thinking about and of meeting the demands of his daily life, including those of his job.
3. He has arrived at the flowering stage of his native intelligence. Men are usually at their best both physically and mentally between twenty and thirty years of age.
4. He has learned to think as a man thinks, and not as a child.
5. He has a greater ability, therefore, to discriminate between values to him of different kinds of educational service.
6. He has a wider range of ideas as to what constitutes real education.
7. He has acquired, in the school of life, a wider range of abilities (habits) in thinking and doing because he has been practising them in dealing with a wider range of situations and problems.
8. He has a wider range of objectives and ambitions.
9. He has a wider range of interests, as well as responsibilities.
10. He usually has more set habits of thinking.
11. He usually has a greater fixity of ideas and is therefore less docile of mind.
12. He is much less controllable by traditional school rules and regulations.
13. He has a greater tendency to challenge statements.
14. He demands more in the way of reasons or proof of statements.
15. He is inclined to demand less formality in the presentation of information.
16. He demands more opportunity to relate (tie up) instruction with his own experience.
17. He has a greater tendency to carry the instruction over from one period to another and to keep turning the new ideas he has gained over and over in his mind.

Because of this greater maturity and his status as an independent citizen, "on his own," as he expresses it, the typical evening school student has also these characteristics to which educational service to him must be adapted:

1. He can walk out when he does not get what he wants.
2. The school cannot dictate what he shall take.
3. Opinions cannot be imposed upon him and be accepted without his consent.
4. His own opinions cannot be suppressed or changed by mere authority.
5. The school cannot enforce with him ordinary disciplining methods of even regular attendance.
6. He is constantly measuring the value of the instruction from the standpoint of his own interests and needs.
7. He wants plain facts with no frills, and he wants these in his own trade terms.
8. But little of the traditional machinery used in the regular education of juveniles applies to adult workers, and even less of the methods.

Motive of the student in attending.—The student has a desire to improve his wage-earning ability. Naturally he believes that he can best accomplish this in the line of work in which he is already engaged. To him the habits (abilities) he has already developed in the trade are his capital for the future which he must increase. He believes that the school can give him certain specific wage-earning assets that he lacks, and to get these assets he comes to the school. As he has reasoned it out, advancement for him lies along the line of doing a better job or of preparing for a better job ahead. On him his job makes certain definite demands. Because he knows very keenly what these demands are, he knows what he wants. If what is offered meets his needs, he will take it—but not "something else just as good." Sometimes marriage provides the real incentive. Often the ambition and foresight of his wife guide a student to success through the door of more education. However much evening school students may differ, they all look at the school from the same angle. Time spent in the class, in home study, and in going to and from the school they regard much more as an investment than they do the small fees they may pay for instruction, and they expect dividends from the instruction which justify the investment they have made.

Individual variations.—Evening school students vary tremendously in all such things as:

- | | |
|------------------------------------|------------------------------|
| 1. Native ability | 12. Opportunity |
| 2. Previous schooling | 13. Nationality or race |
| 3. Previous experience | 14. Social standing |
| 4. Present employment | 15. Attitudes |
| 5. Occupational needs | 16. Personal character |
| 6. Skill | 17. Trade-union affiliations |
| 7. Knowledge | 18. Politics |
| 8. Temperament | 19. Religion |
| 9. Physical capacity and endurance | 20. Interest |
| 10. Age | 21. Habits of study |
| 11. Ambition | |

Some of these variables are of little if any importance to evening school officials in dealing with students. It will not be possible to discuss more than a few of the most important here.

Differences in mental ability. Any evening school which attempts to serve the needs of the wage-earners in any or all the industries of a community will have to deal with a wide range of native ability or intrinsic intelligence. We believe that the tests for general intelligence now used are really tests of academic ability—ability to use academic knowledge—and therefore do not furnish any true measure of the ability of a workman to think about the problems of his job. In every industrial establishment men vary greatly in their job intelligence, partly because of differences in the kind of minds nature gave them, and partly because of differences in the kind of habits (methods of planning and doing work) which those minds have developed through experience on the job. These wide differences are reflected in the student body. One thing, however, these students have in common: the ability to hold down some job in business.

Previous schooling. On the average, an evening school student has had little more than an eighth-grade education or its equivalent. Some have had less than eight years of regular schooling. A great many have taken some kind of home study work with a correspondence school. Some have had one or more years of high school work. A few are high school graduates. Occasionally men attend who have had one or more years at college, and now

and then a graduate engineer enrolls for some special course he needs. The great bulk of the student body, however, is made up of workmen who left school early, as soon as the law permitted them, to enter employment. On the whole, their previous education is represented by the statement which they so frequently make on their application cards, "I finished the common schools." As a group, evening school students differ less as to the amount of schooling they have had than they do about most personal characteristics. One thing, however, they have in common: enough previous schooling to meet the requirements of some occupation in the business.

Previous occupational experience and present employment. Of course evening school students come from different trades or lines of employment. Some have been employed in the trade a long time and some a short time, while some are just starting. In any given trade or line, they are engaged in different branches or departments. In any given branch, they are usually engaged in different occupations. In any given occupation, some have been employed for a greatly varying length of time, while still others are just beginners. In the same occupation, they have acquired by practice in its processes certain habits of thinking and doing, but they differ greatly as to the kind of habits they have acquired and the degree to which these habits have been established. In the work at which they are employed they have arrived at a certain level or status, ranging from helper and apprentice to journeyman, foreman, and superintendent. One thing, however, they all have in common—they have gained some foothold in the business or can see ahead of them a place where they can gain a foothold.

Occupational needs. These vary as between workers in different trades or lines of employment. Clearly the job demands on printers are entirely different from those on electricians. These demands also differ widely as between different branches of the same business. The things a journeyman engaged in hand composition must know and must do are quite distinct from most of the requirements on a journeyman employed in presswork. Similarly, a worker in a given occupation, within a branch or department of a trade, has different needs for instruction because he faces differ-

ent processes and problems and therefore different learning difficulties from those of other occupations. In machine composition, a branch of the printing trade, to illustrate, type is set by such different machines as the linotype, the monotype, and the Ludlow Ad Setter, but the processes in each of these occupations are entirely different in their demands on workers, and therefore in corresponding learning difficulties and need for help.

Workers in the same occupations also differ widely in what they know and therefore in what they require from a school. For example, a beginner in hand composition work may need direct instruction regarding straight matter, while the journeyman may want help in setting attractive "ads." To make the problem still more complicated, workers having the same learning difficulties to overcome and therefore the same specific needs do not have these needs at the same time in any year or during the same year. One thing, however, all workmen have in common: either the job they hold or the job they want to hold makes definite demands.

Point of view. When the evening school student enrolls, he is not—at the time at least—interested in general education. He sees no benefit to himself as a wage-earner in academic degrees and credits. By the extent to which he can use it he measures the value of everything he gets in the school. There is nothing strange about this. He is engaged in a struggle for a set prize—a bigger pay envelope and a better job. Like the athlete who is competing for a purse or an honor, he is interested at the time solely in the instruction which will make him more capable as a workman in the specific operations and processes where he must win his prize.

As a result he thinks only of trade knowledge in connection with its use. He has already found out that merely memorizing a lot of facts is "no good." He wants the applied knowledge which he calls practical, and not mere theory. He can do many things, and therefore wants to learn how to do only those things he cannot do. He wants to know the why of the things he can already do and of the things he is learning to do. To him, this why begins and ends with an explanation with which he can think—a usable explanation. To him, poor teaching is instruction that "gets me no-

where," and he readily recognizes poor instruction. As a student, he does not respect an instructor who lacks skill and practical knowledge or an instructor who cannot teach, cannot "put over" what he knows.

Engaged in a competitive game, his attitude is very much like that of the individual athlete—"every fellow for himself." Curiously obedient to rules and regulations and observant of reasonable requests from his instructor, he nevertheless plays his game very much alone so far as his fellow-students are concerned. He is fair with them and courteous in a rough fashion, but has no time for social amenities and "social doings." If not benefited, he drops the work and quits the school, but will continue year after year as long as he gets real help in meeting real needs and real aims. Usually also he does not respect instruction very much for which he has made no sacrifice, but follows up training in which he has made an investment.

Probably of all students the evening school man has the least need for real school discipline, at least of the old kind. As a learner he can no longer be dealt with as a child, and he is always quick to detect and resent any attempt by the school to stand *in loco parentis* to him. While he respects competent authority, he insists on being shown the reasonableness of rules and regulations which he does not understand or which he regards as foolish. In the class or school shop he looks upon the instructor as one of his own kind—a workman who has progressed further than he has, thus far at least. Respect for the teacher is based entirely on his ability to do what he talks about rather than to theorize about it, and his relation to the teacher is more nearly that of an equal than can be found in almost any other kind of educational service.

As he is amenable only to ordinary social conventions and man-to-man methods, ordinary school rewards and punishments do not function, and the chief device for control is interest and satisfaction in learning something usable. He is not interested, therefore, in grades or monthly reports, and usually cares very little for rankings or diplomas. Like all other human beings, however, he does take pride and satisfaction from any piece of work successfully done; consequently he attaches value to plain certificates

issued by the school which evidence his completion of specific unit courses or of a general course. In him there is none of the adolescent "rah! rah!" spirit around the school. When he has secured what he wants, he quietly drops out, to return again when a new demand arises or a new opportunity beckons. For the school which serves him effectively he has a high respect or, at bottom, a deep-seated loyalty, but this does not usually manifest itself by attendance upon its commencement exercises or student gatherings.

Inhibiting factors. Usually the evening school student is physically tired after a day's work—a condition which also affects his mental alertness, and which therefore requires teaching direct in character and with a punch. Because of the physical demands of his job on him, he cannot stand the strain, in most climates, of evening school attendance except in the seven months of the year from October to April, inclusive.

Most evening school men make many sacrifices and have many hardships in attending. They must travel to and from the school, a total distance of from one to seventy miles. Usually the student is married; consequently he has many home obligations. Often, too, he is required to work at the shop on his school night; or is sent out of town on some job connected with his employment; or is required to work in a night shift "two weeks on and two weeks off."

Usually he has only a comparatively small income. Sometimes even a nominal evening school fee represents a serious financial investment. He is not always regularly employed. When there is plenty of work, he seeks training, but when there is no work, he is liable to become discouraged and lose his interest in self-improvement. As a result, the attendance on the evening school increases during "good times" and decreases during "bad times." The typical evening school student takes instruction at the time when he is most steadily employed and when he is probably working under the greatest pressure, but usually keeps away from the school during the period when he has the greatest amount of free time.

Notwithstanding his age and independence, the typical evening

school student is timid. The memory of regular school-days when he was required to spend long hours on uninteresting tasks remains with him and makes him both backward about coming to the school and hesitant in his actions during his earlier hours there. To him the experience of being a student again is often a new and strange adventure about which he is frequently nervous and over-anxious. Naturally he is stimulated by any encouragement he may receive from his employer. Sometimes he is so afraid of his foreman that he requests the school officials not to give his employer the customary information about his presence at the school. If his improved efficiency is not recognized, commended, and rewarded in a reasonable time at the shop, he is likely to become discouraged and not return another year for any additional courses.

Learning ability. What effect does age have on the ability to learn? This is only asking in another way the question, To what extent can adult workmen profit by instruction in the evening industrial school? In *Adult Learning*, Dr. Edward L. Thorndike, the distinguished psychologist, has answered both questions. In this book he has collected and interpreted the experiments of others bearing on the issue, as well as his own. Here are some of the conclusions he states which are pertinent to the friends of the evening industrial school movement: ²

1. "In general, nobody under forty-five should restrain himself from trying to learn anything because of a belief or fear that he is too old to be able to learn it. Nor should he use that fear as an excuse for not learning anything which he ought to learn. If he fails in learning it, inability due directly to age will very rarely, if ever, be the reason."
2. "In general, teachers of adults of age 25 to 45 should expect them to learn at nearly the same rate and in nearly the same manner as they would have learned the same thing at fifteen or twenty. What that rate and manner will be depends upon the general intelligence and special capacities of the individual."
3. "If an adult class were to be divided into two sections, one expected to make rapid progress and the other expected to make slow progress, age would be practically worthless as a basis for the division."
4. "The provision of opportunities whereby adults can learn those things which they are able to learn and which it is for the common good that

²Edward L. Thorndike, *Adult Learning* (1927), Chap. XIII. Published by permission of The Macmillan Company.

they should learn is a safe philanthropy and a productive investment for the nation "

5. "The facts of adult learning may also encourage industry to face changes in machinery, processes and the like with the hope of reducing disturbances by education of the workers." [For new occupations.]
6. The psychologist "sees hope in adult schooling as a means of social health and is ready to exchange early schooling for it nearly at par."
7. "The fact should . . . cure us of considering early learning as a law of nature or as invariably superior and of treating learning by adults as something irregular, remedial, casual and trivial."

In support of his conclusion that a much larger fraction of schooling should probably be left to adult years than at present, Thorndike makes these statements:

1. "A better selection of persons to be taught could be made."
2. "A better selection of the content of instruction could be made "
3. "A better arrangement and sequence of learning can be provided."
4. "A loss of abilities by forgetting or of time by relearning can be prevented."
5. "The lag of schooling behind science and technology can be lessened."
6. "There is a real danger that, in our zeal to give young people the blessings of more abundant schooling, we may be depriving many of them of the satisfaction and instruction that comes from doing something well, measuring up to standard in some respects, accomplishing something in such a way as to earn their self respect."
7. "There are great advantages which accrue when learning satisfies some real need, benefits some cherished purpose, and is made use of at once and so kept alive and healthy for further use."

Priceless training assets.—Generally speaking, the foregoing conclusions compare the mental ability of adults and of children *to learn anything*. We get an even greater confirmation of the value of extension training for employed people when we compare the ability of the evening school student to learn the particular knowledge and skill he wants with his ability to learn the same thing when he was a boy—before he had acquired, as a priceless learning asset, successful experience in the trade which he follows:

1. He learns this new skill or knowledge about the time he needs to use it on an old job or on a new one. He could neither do this as a boy nor do any of the kind of learning described in statements below from 2 to 7, inclusive.

2. He builds the new experiences which the school gives him on top of old experiences.
3. He interprets old experiences with new facts and ideas.
4. He fixes new experiences in skill and knowledge by using them.
5. He applies old habits (methods) to the doing of new things.
6. He utilizes old experience as his stock of thinking stuff in reasoning about both old and new things.
7. So far as the skill and knowledge he wants to learn is concerned, he had none of the foregoing learning assets when he was a boy.

Some special considerations. Our experience with the evening school student confirms as a summary these further statements about him as a successful learner of the particular skill and knowledge he wants:

1. He is an interested learner because he has a use for what he is being taught, if it helps him.
2. He wants new stuff (new knowledge) related to old stuff.
3. He wants new instruction tied up with his job or his objective.
4. He learns best when he needs knowledge or skill for an immediate use.
5. At first he is usually awkward or timid as a learner.
6. He frequently needs help in mapping out a course of training.
7. He needs to learn how to study.
8. He expresses himself by doing and not by talking.
9. The evening school student must be handled as a "worker learning" and not as a "pupil learning."
10. He appreciates a businesslike management of his case.
11. He wants to be "bossed" just as he is "bossed" in his daily work—he is willing to be "called down," when he needs it, if this is done in the right way.
12. He demands modern equipment and adequate tools and supplies.
13. He is usually honest and trustworthy and seldom "cheats."

Adapting the evening school to its customers.—In the foregoing pages a running description has pictured the characteristics of

the evening extension school student. If the statements made regarding its customers are true, then that type of school, if it is to get anywhere with its service, must adapt itself to the conditions described. Some of the things it must do are presented in the chart on the following pages.

In this chapter the characteristics of the evening school student to which training must be adapted have been discussed. They lead naturally to this question: If the evening industrial school is a serious business, what are the factors in the success of that kind of business which need to be recognized and safeguarded? These factors are analyzed in the next chapter.

QUESTIONS

1. Check up your own experience and impressions against the characteristics of the student workman stated in the first column of Chart V. Where you disagree, check your judgment with that of others familiar with the evening extension industrial school.
2. Check in the same chart the school policy or procedure suggested for each characteristic of the student workman. Where you disagree, check your judgment with that of others experienced in the evening extension industrial school.
3. In many of the States, we seem to be going on the theory that with the exception of shop courses, there is no need in the evening school for the competent tradesman as an instructor, and that all other courses require, as an instructor, the highly trained technician who has acquired in some way enough familiarity with occupations to apply his technical knowledge to their problems. Assuming that the analysis of the evening school student given in this chapter is correct, are these States operating on the right theory?
4. Can you measure the efficiency of an evening school by the number of diplomas it issues for general courses completed? Why?
5. Is the evening industrial school justified in recognizing by a wide variety of short courses the specialization in industry which has produced many occupations making different demands in skill and knowledge on workers, or should it try to reform industry by insisting on general courses for trades? Should the school cater to the characteristics of customers or try to impose on them what academic authorities think they should want to take?

CHART V

ADAPTING THE EVENING INDUSTRIAL SCHOOL TO THE CHARACTERISTICS OF ITS CUSTOMERS

Characteristics of the student workmen

1. Desires to improve his wage-earning ability
2. Desires to improve it in his present line of employment
3. Needs certain specific wage-earning assets
4. Advancement to him lies along the line of doing a better job or of preparing for a better job ahead
5. Job makes certain specific demands on him
6. Has certain specific occupational needs in skill or knowledge
7. Knows what he wants
8. Wants usable skill or knowledge
9. Wants to learn only the things he cannot do
10. Wants to know the why of things he can do or is learning to do
11. Quite frequently in his progress, he may want training for a new occupation or new branch of his line of employment, for which his previous experience furnishes very little preparation
12. Regards time, effort, and money he spends in the evening school as an investment from which he expects immediate returns

What the school should do

1. Give him the direct training and skill or knowledge which will improve his wage-earning ability
2. Give him training in his present line of employment
3. Provide as the objective of each course a direct earning asset or assets
4. Make available to him in his line of employment courses of both kinds
5. Base courses of instruction on the actual demands of occupations on workers
6. Make the aim of each short course the helping of workers to meet specific occupational needs
7. Give him what he wants, but see No. 41 also
8. Teach only functioning (usable) skill or knowledge
9. Assign him to unit courses in which he will receive only training he can utilize
10. Give him in a practical way applied theory or usable explanation
11. Recognize him as a novice and provide training in the elementary habits, skill, and knowledge required by the new occupation and leave to the occupation the fixing or extension of these habits
12. Give him as a customer value received in a tangible way

CHART V—Continued

ADAPTING THE EVENING INDUSTRIAL SCHOOL TO THE CHARACTERISTICS OF ITS CUSTOMERS

Characteristics of the student workmen

13. Follows up training in which he has made an investment
14. Does not appreciate instruction for which he makes no sacrifice
15. Not controllable by traditional school rules and regulations
16. Is a self-supporting, independent citizen
17. Not interested in social amenities and "social doings"
18. Usually not interested in honors, degrees, and diplomas, but appreciates recognition of the fact that he has satisfactorily met the requirements of the course or courses he completes
19. Is of widely varying levels of native ability
20. Has had varying amounts of previous schooling
21. Has had widely varying previous experience in a given occupation
22. Has arrived at widely varying levels of position in his line of employment

What the school should do

13. Provide all sorts of unit courses and general courses composed of unit courses, and if necessary advanced and special courses, to serve those continuing from year to year as students
14. Require the payment of at least a nominal fee as "earnest money" and require students to meet at least minimum requirements for credits
15. Set up as nearly as possible a trade or shop atmosphere and deal with him as a worker and not as a traditional student
16. Treat him as a man and not as a school-boy
17. Recognize that the evening school student wants instruction and not social diversion
18. Issue appropriate certificates and diplomas to every student who meets satisfactorily the requirements of courses, and maintain permanent records evidencing the facts of his career as a student
19. Find, classify, and serve all levels of ability
20. Serve every man able to profit by instruction, and adapt training to varying degrees of education
21. Start every man on his level of previous experience and make use of this asset in training him
22. Provide courses of instruction in each line of employment to meet the different levels of demand on workers in different levels of positions in that line

CHART V—Continued

ADAPTING THE EVENING INDUSTRIAL SCHOOL TO THE CHARACTERISTICS OF ITS CUSTOMERS

Characteristics of the student workmen

23. Has arrived at widely varying habits (abilities, methods) in the performance of the processes of a given occupation
24. Has widely varying needs as a workman in a given occupation
25. Has widely varying times at which he requires service from the school

What the school should do

23. Correct bad habits, and inculcate new habits and standards in the performance of processes
24. Provide a wide range of short-unit courses to meet varying needs
25. Provide the customary or regular short-unit course and also repeat unit courses during a given season as many times as necessary; and where necessary furnish individual instruction also
26. Plan to reduce his efforts in learning to a minimum by all such things as comfortable quarters, good light, careful lesson-planning, efficient teaching methods, reduction of lost motion in shop or class work, and the like
27. Operate courses as many months during the year as the season and the climate permit
28. Recognize the difficulties under which students attend and provide instruction which will best meet these inhibiting conditions
29. Retain only those instructors who have a sympathetic understanding of the evening school student
30. Develop and use instructional material such as job sheets, lesson sheets, and text material to help him over these interruptions

CHART V—*Continued*

ADAPTING THE EVENING INDUSTRIAL SCHOOL TO THE CHARACTERISTICS OF ITS CUSTOMERS

Characteristics of the student workmen

31. Does not respect an instructor who lacks skill and practical knowledge in the thing he teaches
32. Does not respect an instructor who cannot "put over" what the student wants
33. Can acquire usable skill or knowledge on some level

Learns by doing

34. Learns by doing
35. Thinks only of trade knowledge in connection with its use

Interprets old experience with new facts or ideas

36. Interprets old experience with new facts or ideas
37. Utilizes old experience as his stock of thinking stuff in reasoning about old and new things
38. Fixes new experiences in skill and knowledge by using them

Learns to think in a practical way

39. Learns to think in a practical way
40. Interested learner of any instruction which really helps him

Needs help in mapping out a course of training

41. Needs help in mapping out a course of training
42. Does not know how to study

What the school should do

31. Employ only instructors who are masters of the skill or knowledge they undertake to teach
32. Do not retain any instructor who is not capable of teaching his subject
33. Find the level for each student and serve him on that level

34. Provide practice in doing and thinking about the doing of all skill and knowledge taught
35. Teach trade knowledge only in connection with its use in some way
36. Employ only instructors who know both the old and the new experiences of their students
37. Use old experience of the learner as the apprehensive base of teaching

38. Give him participating experience in thinking and doing to develop habits of using skill and knowledge, leaving to his job the complete fixing of these habits
39. Give instruction which makes practical application of all theory and skill taught
40. Keep his interest by making every lesson serve a real need

41. Go over his problems and wants; counsel him regarding his course needs and future possibilities
42. Make special effort to help him form proper habits of study

CHART V—*Continued*

ADAPTING THE EVENING INDUSTRIAL SCHOOL TO THE CHARACTERISTICS OF ITS CUSTOMERS

Characteristics of the student workmen

43. Expresses himself by doing and not by talking
44. Must have instruction tied up with his job or his objective
45. Learns best when he needs skill or knowledge for immediate use

What the school should do

43. Provide every possible opportunity in class and shop for the application of skill and knowledge and avoid all merely academic discussion.
44. Save time, effort, and money by giving only skill and knowledge usable to the learner
45. Provide a continuous cafeteria service for workers in different lines of employment, as well as table d'hôte privileges

CHAPTER V

SUCCESS FACTORS IN THE EVENING SCHOOL

To the wage-earner, attending the evening school is a serious business. After a hard day's work, he is tired. There are other things too, which he would like to do. Sometimes the small fee he may pay represents a real sacrifice when he is "hard run" for money. In any event, he invests his time and his effort in the school. Naturally, he expects to get out of this investment skill or knowledge which will repay him for all this. If he does, he will come back again when he needs further aid in his work; if not, he always says thereafter that the school was a "dud," and advises his associates to have nothing to do with it. As he is the person for whom the school really exists, he has a right to expect from it the best possible service. Whether the school is a public or private enterprise, it is usually operated as a welfare service and not for profit. Those who support it are also interested in giving the best possible service at the least cost in time, effort, and money consistent with such service. If for no other reason, they would like to see their money wisely used so that as many as possible may be reached and helped.

The evening industrial school as a business enterprise.—All the foregoing is but saying in other words that as a business enterprise an evening school should in every respect be conducted efficiently. If not, it seldom lives long. In this respect, there is a vast difference between regular schools for children and youth on the one hand and evening school service for adults. The former may be very poor and yet retain its pupils because either the law or parents require them to attend. But the adult, being free, attends only as long as the experience is satisfactory. On this subject, as every evening school administrator or teacher soon learns, the ordinary man is a very keen critic.

Four conditions of success.—Any evening industrial school is conducted efficiently in proportion as it does these four things:

1. Offers its customers what they want (responds to a real demand)
2. Promotes an increased demand for what it offers
3. Renders a satisfactory service to customers
4. Does all this at the least cost in time, effort, and money consistent with the successful operation of the business

When is an evening industrial school conducted efficiently?—One answer to this question is: When it secures satisfactory results among its customers, its students. Without doubt also, the surest indication among workmen that they are satisfied customers is what they say about the work they took. Probably on the whole the most reliable evidence as to the real value of a good evening industrial school is furnished by the fact that year after year large numbers of workmen from the same shops come for help, and that at more or less irregular intervals the same man returns for additional instruction. But these indications, while sound and reliable, give those responsible for such schools but very little tangible information on which to base any specific improvement in the service at points where this is most needed.

Another answer is that an evening industrial school will be conducted efficiently only as it handles properly the success or efficiency factors for the business. For many years we have, after a fashion, been gaining experience in the administration of such schools, and from the lessons learned we have come to recognize certain success factors in their operation. A success or efficiency factor in these schools is any phase of the service where the right thing makes for the success of the school and the wrong thing causes the work to suffer. If, for example, the service is carried on in a building with proper light, heat, ventilation, and seating, the instruction is not hampered by uncomfortable conditions as it is when classes meet in miserable quarters. A suitable building, therefore, is unquestionably an element of success, an efficiency factor.

What are these recognized success factors in the conduct of an evening industrial school?—Doubtless they could be stated

in various other ways, a rephrasing and rearrangement perhaps which the reader may undertake for himself. Such a school will be successful in proportion as all the following needs or phases of the business are efficiently met.

CHART VI

SOME SUCCESS FACTORS IN EVENING INDUSTRIAL SCHOOLS

1. Efficient organization of the business (Chaps. III, V, XVIII, XIX, XX, XXII)
2. Helpful working relations with other agencies (Chaps. XIX, XXI, XXII, XXIII, XXIV)
3. Suitable buildings (Chaps. VI, VII, VIII)
4. Adequate equipment (Chaps. VI, VII, VIII, XVI, XVII)
5. Functioning subject-matter (Chaps. IX, X, XI)
6. Effective organization of functioning subject-matter into courses (Chaps. X, XI, XVI, XVII)
7. Adequate instructional material and devices (Chaps. XI, XVI, XVII)
8. Competent instructors (Chaps. XII, XIII, XIV, XV, XIX, XXIV)
9. Effective supervision (Chaps. XV, XVI, XVII, XIX, XXIV)
10. Proper selection and admission of students (Chaps. IV, XVI, XX)
11. Successful methods of getting and holding students (Chaps. IV, XVI, XVII, XIX, XX)
12. Sound methods of instruction (Chaps. XVI, XVII)

Efficient organization of the evening school business. While the administration of any venture in general education is usually comparatively easy, simple, and rigid, that of the evening industrial school, when organized for real service, is particularly difficult, because its problems are complex and its service must be elastic to meet the infinitely varied conditions. As a special business, the evening school has its special problems in finance and accounting, its special systems of records and blanks and certificates, and its special demands on the office service.

Helpful working relations with other agencies. In any community, the evening industrial school comes into contact with a wide variety of agencies, chief among which are associations of employers and organized labor. While the evening school is seldom a battle-ground between these two forces, it always needs their good-will and sometimes their coöperation in securing adequate funds for its work. Indeed, every consideration requires

that those responsible for the evening school should build up among the various clubs and societies of the community the friendly support upon which it relies in emergencies. Often, too, such agencies can aid the school tremendously in bringing to the attention of workmen the help it offers and in encouraging them to attend. From such agencies also should come helpful criticism and suggestion regarding old courses and their improvement and the introduction of new courses. In addition, there is the further question of the relations of such a school to other educational agencies, such as other forms of evening school, schemes of apprenticeship training, and the full-time trade and part-time trade extension schools.

Suitable buildings. As we shall see, evening industrial classes are held in a wide variety of places, ranging from the same building which is used during daylight hours for a day preparatory trade school to all sorts of regular school buildings, rented quarters, and manufacturing plants. All these present an equally wide variety of conditions which affect the work of the school such as accessibility, light, heat, ventilation, and the like.

Adequate equipment. In this we include all those accommodations in addition to the building which go to make up what we would call the plant of the school, such as, for example, proper seating for adults, adequate blackboards, check-rooms or locker-rooms for hats and clothing, toilet and wash-room accommodations, library facilities, recreation rooms, gymnasium, and, in the case of a large centrally located school in a big city, cafeteria accommodations. All these things contribute in one way or another to comfort, attractiveness, and the improvement of the instruction itself.

Functioning subject-matter. The efficiency of any evening industrial school depends perhaps more than anything else upon its ability to secure for each class organized a group of workmen containing only those having a common specific need. When this has been done, the next step is to set up the working and teaching conditions which make the meeting of this specific need possible and to determine the functioning subject-matter—that is, the right specific content—which will meet this specific need. In

other words, only that subject-matter is to be taught which gives the learners in such a class the specific help they all need. To take a simple illustration, if a group of auto repair men attend an evening class in storage-batteries, nothing should be taught in such a course except that which would aid these men to meet the problems with storage-batteries common to auto repair men. To the extent to which men in other occupations could profit by taking this course it would be defective because it would not have functioning value for auto repair men only.

Efficient organization of courses of instruction. The authors believe, of course, that there is a place in evening school for general courses in some subjects, such as general drawing, general mathematics, and industrial science, and expect to give these courses some attention later. As a solution of the mass problem, however, as a device for giving the ordinary workman specific help when he most needs it, we believe in the short-unit course organization of evening school instruction. This calls for all such things as the analysis of trades to determine their teaching content; the organization of this content on some basis into short-unit courses for each trade separately; the arrangement of these short units for each trade in the proper sequential training order; the scheduling of these units at opportune times during the evening school year; provision for the repetition of units for which there is a special demand; and the assembling of these unit or certificate courses into a general or diploma course.

Adequate instructional material. When the evening industrial school undertakes to train a student in any skill required in a trade, it must have the proper tools, machines, and shop materials for the job. Because so much can be taught through the eye that cannot be "put over" with mere words, particularly to workmen who are accustomed to doing rather than to talking, the teaching equipment of such a school requires not only textbooks and job and instruction sheets and reference books, but also "movies" and "stills" and models and cut-away parts and demonstration machines and blue-prints and charts and diagrams of an infinitely varied character. Without this help the school loses much of the potential value of a really competent instructor.

Competent instructors. Those who teach in an evening industrial school must possess three indispensable assets. (1) They must be workmen of recognized skill or success in the thing they teach. (2) They must be masters of the technical knowledge with which they deal in their teaching. (3) They must be able to teach others what they know. The first two of these assets a man must have before he is taken over on any basis as an instructor. In some way he must be trained as rapidly as possible to be a teacher. This involves the careful selection of men with successful trade experience, technical knowledge, and the natural qualifications of a teacher. And it also involves the training of such men in service as teachers and the continued supervision of their work.

Effective supervision. A supervisor is one who detects trouble and remedies it. In an evening industrial school, trouble is anything which interferes with efficient instruction. Such troubles range all the way from improper ventilation to poor teaching. As the latter is the most serious of all troubles, much of the time of the supervisor must be devoted to the training of teachers in service.

Proper selection of students. Doubtless there are some courses which novices can pursue with profit in an evening industrial school—a question which will be discussed later. Primarily, however, we are here concerned only with workmen already experienced in some line of productive employment. In other words, we are talking about extension classes for industries and trades—extension classes, for example, in machine-shop work open only to those engaged in that line of work, and extension classes in baking open only to those already employed as bakers. This means standards in the selection and admission of students to such evening classes which will insure interest, adequate previous experience, and the mental and physical ability required for the class and by the trade.

Successful methods of getting and holding students. Only those evening industrial schools succeed for any length of time which have the missionary spirit. In their zeal for service, they are constantly searching for groups having common needs. They must be ready to offer a new course or revive an old one any time

a group having a common need applies for the service. By analysis of new industries and the study of changes in old ones, they must sense new needs and new groups and cater to them. By shrewd publicity and advertising methods, they must constantly sell their wares to new customers and lure old ones back for further service. And by the excellence of its work the evening school must keep every old customer sold and make him a focusing point for new business. All this is good business.

Sound methods of instruction. Both habit psychology and the experience of evening industrial schools indicate the way in which workmen can best be taught either new skills or new information. They learn new skills by practising them. They build new skills on top of old skills, and new experiences on top of old ones. They understand and retain new knowledge when it is tied up with old experiences. They learn new facts best when they need them for some purpose. They are interested only in usable knowledge, and they develop the ability to think about the affairs of their trade by reasoning with functioning facts about real problems in that trade. All these things and many more constitute the true pedagogy of the evening industrial school without which it accomplishes but little of permanent value.

Not all success factors of equal importance.—Clearly not all these matters are equally vital in the evening industrial school. It would probably be very difficult for all of us to agree on which was the most and which was the least important. If we were forced to express an opinion, we would defend the proposal that competent instructors stood first and perhaps helpful working relations last in the list, but it is just our opinion. Our reasoning is that the right kind of a teacher who knows the trade he teaches and how to teach will make his class "go." Furthermore, what goes on inside the school counts in the end much more than outside politics, vital as the latter may become sometimes. After all, the school stands or falls on the value of what it gives the man. At least that is our reasoning, but the reader may have a different opinion. We are now ready to suggest a Checking or Troubleshooting Chart for use in analyzing any evening school:

CHART VII

CHECKING OR RATING CHART ON THE _____ EVENING
INDUSTRIAL SCHOOL

_____, 19—

<i>Item or factor of success (See Chart VI)</i>	<i>Comp. weight</i>	<i>Rating for the school</i>	<i>What's wrong?</i>	<i>What to do</i>
1. Efficient organi- zation of the busi- ness				

Using the chart.—Throughout this book, whenever the occasion offers, analyses and charts bearing on phases of evening school work will be offered. The above is a very simple one which may prove of use to some readers. Any reader can set up his own scheme of weighting. He may even give each of the twelve factors a different importance or weight, which does not matter as long as the total of all weights is 100. "Competent instructors" might be weighted twenty points, for example, and the remaining eighty points be divided in some way among the remaining eleven items. On the other hand, each of the entire twelve success factors could be given a maximum value of ten, the particular evening industrial school being rated item by item on a scale of ten. The total of these ratings divided by twelve would give the estimate of the school on the basis of 100 per cent. One way to use

the chart would be simply to check the factors without rating in which the work is unsatisfactory, and then to proceed to set down the causes for the trouble and the proposed remedy.

Most of the chapters that follow take up these success factors in detail, and the effort has been made to classify the information and suggestions under appropriate chapter headings and to collect there, as much as possible, all matter which bears on a given success factor. Where any further material related in any way to this success factor is given in another chapter, cross-references have been made. It has seemed advisable to start the consideration of success factors with those pertaining to suitable quarters for the school.

QUESTIONS

1. Return to Chart VI in this chapter, "Success Factors in the Evening Industrial School," and arrange the factors listed there in the descending order of their importance or weight.
2. Try your hand at trouble-shooting, either your own or some other evening industrial school with which you are familiar, using the Checking or Rating Chart above (Chart VII).
3. Get some other person familiar with the same school to do this also, and compare your results. One good way to do this is for officials of two evening schools in different communities to rate each other's schools.
4. The success factors discussed in this chapter are predicated on the idea that if efficient policies and procedures are employed, good results will be secured. They are only internal evidences at the best of the efficiency of the school in attaining its objective of better trained workmen. No mention is made of external evidences that the school has succeeded in its aim. List six external tests or evidences of the degree to which the school has actually succeeded.
5. Is it possible, generally speaking, to get and teach functioning subject-matter to student workmen through an instructor who is not a competent tradesman in the courses he teaches?

CHAPTER VI

BUILDINGS

There will probably never come a time when special buildings will be erected for evening industrial schools. Every consideration of economy requires the use of structures which are used for other purposes during daylight hours. Under these conditions, the task of the administrator is that of selecting and adapting some existing building to the requirements of evening classes. Most of this work will probably always be conducted in school-buildings which have been planned for children and youth who are attending full-time instruction during the day; little thought or provision, therefore, has been made for their use as quarters for evening school work. With the progress of the present movement for adult education, we may reasonably expect more attention to this matter in the construction of new school-houses. When evening classes are held in rented quarters, the problem of adapting them to the work, though somewhat different in character, is usually even more difficult. This is also true when class-rooms are improvised in manufacturing plants.

The problem, therefore, always before the administration is not that of planning and constructing an ideal arrangement for evening classes, but of making the most of the best facilities he can secure. In doing this he must face all such questions as the accessibility of the building, central vs. district quarters, light, heat, ventilation, seating, blackboards, wash-rooms, locker or other accommodations for clothing, and what might be called desirable additional features. It is the purpose of this chapter to make suggestions on these points.

Accessibility

Accessibility is a relative matter depending largely on the size of the community. Every consideration of economy and efficiency

points to the centrally located building in which all activities are housed. In large centers of population, however, the long distances to be traveled from outlying industries to a central building make it very difficult for workmen to attend. Tired after a long day's work, they must first return to their homes to change clothes and eat the evening meal and then travel the street-cars of a crowded community. This task often becomes very difficult and often impossible. There are only three possible remedies for this trouble. One is to provide neighborhood classes, which, as we shall see, have their objectionable features and special problems. Another is to provide locker, wash-room, and cafeteria accommodations at the central building which will enable workmen to come directly from work to the central building. This solution is discussed at another point in this chapter under "Desirable Additional Features." A third remedy in the larger cities is furnished by additional central buildings. There is no absolute rule or standard by which to determine under all the widely varying conditions what policy to follow, but the decision in a large city is one which requires the careful consideration of all factors involved.

Distances to be traveled by students of course vary greatly, as all men from the same occupation do not live in the same neighborhood or even in close proximity to the places where they work. In general, any evening class operates at a great disadvantage whose students must take more than forty-five minutes on the trolley-cars to reach the school. It is true that this distance is shortened for those who own automobiles, but numerous as these have become, no evening school program can be planned on the theory that more than a minority of the students come in their own machines. This problem becomes more acute with those evening classes, particularly shop classes, which are held four hours per night, one night per week, instead of two hours for two nights per week, and therefore start at 6:30 instead of 7:30 P.M.

The schedule of the typical evening school student runs about as follows: He goes off the job not later than 5:00 P.M. In general, it takes him about thirty minutes to wash up a little, get away from the plant, and reach his home. Another thirty minutes is required to clean up for the evening meal. He sits down with the family

at six o'clock. At 6:45 he is usually on his way to the school. This allows a total of forty-five minutes to reach it and report to his class at 7:30 P.M. As the return journey occupies the same time on the cars, it is clear that he gives on the average about one hour and thirty minutes to travel in addition to the time spent in the class. Obviously, the only solution of this matter for students attending classes that begin at 6:30 P.M. is to go directly from the plant to the school. (See "Desirable Additional Features" below.) As will be shown later, many students prefer to make the extra effort of attending a 6:30 class one night for four hours a week instead of a 7:30 class which meets two nights each week. In this way they cut the travel time and travel cost 50 per cent.

Convenience of access.—Where conditions are such that there is a choice of buildings, one of which is close to a main-traveled thoroughfare and the other remote, the former is by far preferable, other things being equal, for two reasons: The time to travel is reduced and the walking distance from trolley-cars to school is shortened—a very desirable feature in Northern communities during severe winter weather. In general, any evening school operates at a distinct disadvantage which is located more than three blocks away from a stopping-point on the main artery of travel leading to the building. The better the highway approaches for automobiles, the greater the advantage also. In this connection it is well to point out that improved facilities for parking vehicles on the school premises or in the neighborhood will repay serious attention by the school authorities.

Centralized Plan vs. District Plan

The case for the district or neighborhood plan.—There are certain undoubted advantages in distributing evening classes through different districts or sections of a large city. Clearly, these classes are much more accessible to the people of the neighborhood than if they were conducted at some central point, and the corresponding benefits result which were described in previous paragraphs. There is probably also better community advertising and greater community interest and support than when all the work is taught "downtown." Where the work of such classes

is good, there is likely to be a much larger number of students enrolled in the community.

The case against the district plan.—On the other hand, this plan has certain very pronounced disadvantages which usually far outweigh its benefits. Considered from almost any angle, the plan is much more costly and much less efficient than a centralized evening school service held in one centrally located building. What the local plan gains from greater accessibility and more intimate neighborhood contact it more than loses in the less effective expenditure of time and effort and money; what the centralized plan loses in accessibility and in local contacts, it more than regains through the more efficient expenditure of time, effort, and money in the establishment and operation of the school.

The case against the centralized evening school has probably already been fully stated. For most communities there can be but little debate about the advisability of centralizing all evening industrial school work in one center. If this school were an exclusive agency for the benefit of a small and selected group, there would be no argument on the other side of the question. When such a school undertakes, however, to reach and help as many as possible, its comparative inaccessibility and lack of neighborhood contact become a source of weakness to be reckoned with in a large center of population—and the larger the city the more potent these disadvantages. Somewhere up the line, the population is reached beyond which they outweigh the unquestioned benefits of the centralized plan and point to the necessity of providing additional centers in other parts of the city rather than neighborhood classes.

The case for the centralized plan.—Except in cities of, let us say, more than 200,000 population, we believe that the evening industrial school should be centered in one building. In the larger cities, the same plan should simply be extended by providing, as needed, other large centers rather than widely scattered neighborhood classes held in neighborhood school-houses. In passing, it should be pointed out that this statement has to do only with the customary use of school buildings as evening school quarters. It has nothing to do with the holding of special classes in manu-

facturing plants. On the contrary, where any establishment has the proper equipment for the training, and the central school does not, such classes should be held in the plant and nowhere else. The advantages of the centralized over the district or neighborhood plan include all such items as the following:

1. *Economy in special building equipment.* Wherever there is in the community a day preparatory industrial and trade-school already established, its building will usually be the one in which the central evening industrial school is operated, because it will require fewer changes and additions to make it suitable for the new work than any other school-house in the city. In the absence of such a trade-school, the plant of the technical high school, if there be one, is the next best choice. In the absence of either, some centrally located building must be "whipped into shape" for use. Even in the latter case, the special expenditures for all such facilities as special lighting fixtures, study tables and seating, special laboratory equipment, special locker-room and check-room facilities, special storage lockers and bins, and protected storage space for special teaching devices and the like need to be made for one building only. Under the neighborhood plan, much of this expenditure would be duplicated for every building utilized.
2. *Economy in special teaching equipment.* Where one center is used and fully equipped with instructional material and teaching devices of all kinds, such as tools, machines, models, cut-away parts, charts, diagrams, blue-prints, "stills," films, "movie" films, and projecting machines, that equipment need not be duplicated, but can be used by all classes in the same building. Otherwise the cost of duplicating much of it must be met in order to provide students in other buildings with the same aids in learning.
3. *Economy in overhead costs.* A certain number of items of costs must be met at every evening school building for light, heat, janitor, engineering, and fireman service, building supplies, teaching supplies, office service, and the like. All experience, as well as common sense, shows that where these

services are duplicated in two buildings, even in curtailed form, the cost, while not always doubled, is always measurably increased—and that the cost is proportionately increased with each building utilized. Two illustrations must serve. Take lighting for one. The number of kilowatts of current used increases as additional buildings are lighted. One building is illuminated instead of a number, one approach to the building, one set of hallways, one set of wash-rooms, and one office. At the same time, the lower rate of charge per kilowatt for quantity consumption at one centralized school is lost when the increased consumption is distributed among a number of buildings. Take office facilities as another illustration. By the centralized plan, there is need for at least one telephone operator, one registrar, probably one clerk, one set of files, one check-room service, one check on instructors, one place to do business, and the like. By the neighborhood plan, all of these items would be duplicated, even though at a somewhat lessened cost per building.

4. *Economy and efficiency in administration.* In a central school plant, the contact between the office force and everybody connected with the work of the building from instructors to engineers and janitors is made directly. The organization can be made complete and workable because it is operating as a unit. This means both increased efficiency in all administrative matters and reduced costs, because the labor is very greatly decreased of keeping in contact with other buildings and of checking up to make sure that plans and orders are carried out effectively. Quick service, explicit directions, prompt action, close checking, uniform procedures, and consistent policies are promoted by the centering of all activities in one place. There will also be a reduction in the duplication of work and in the waste of time and unnecessary effort.
5. *Economy and efficiency in supervision.* Like all other supervisors, the evening school supervisor has the job of discovering trouble which interferes with good work and the responsibility for remedying and improving the situation. His task

varies all the way from detecting poor light and ventilation to the improvement of teachers in service. When all his problems are located "under his hat," as it were, in one building, he is in a position to maintain closer contact with the work than when it is scattered over widely separated neighborhoods. This not only creates the conditions under which better results will be secured, but reduces the expenditure of time and effort necessary to accomplish them.

6. *Use of a supporting sales service* which makes the attendance more comfortable, more attractive, or more profitable. This includes all those auxiliary features without which a school might still exist and "get along" at least after a fashion, but which experience shows contribute so greatly to enrolment, attendance, and morale. Most of them are of such a character—library, lunch-room, check-room, gymnasium, recreation rooms, stores department, etc.—that they are seldom, if ever, found in district evening schools, at least in any satisfactory form. Both the cost of installing and equipping them and the cost of operating them restrict their use to large evening school centers where duplication is avoided and the costs are distributed over a large enrolment.
7. *Decrease in cost per student hour.* By all the economies described above, the total cost of the service rendered by the central building, including all overhead and depreciation on equipment, will be greatly reduced, as compared with the same service carried on in a number of buildings under the district or neighborhood plan. When this total cost is divided by the number of student hours of instruction given to all students, the average cost per student hour is correspondingly reduced. Experience shows also that when the attempt is made to provide the same course in a number of buildings, the attendance on this course at some buildings often runs so low as to make the student-hour cost too great as compared with that of the same course in another building or with the average for all courses. Frequently this causes the discontinuance of the service.

8. *Better morale of staff and students.* Obviously a central building is likely to be much more attractive and satisfactory in every way than neighborhood centers. Any instructor and any student will have more interest in the work if conditions are good. This cannot be expected, to illustrate, where a few classes are held in some dark, out-of-the-way building where the hallways are dark and gloomy, or where classrooms are poorly lighted, poorly heated and ventilated, and equipped with seating totally unsuited to adults. Contrast this with a central building which is fully used, ablaze with lights, comfortable in its facilities, and attractive in its appearance inside and out. Here the touching of elbows with other ambitious workmen having a common purpose, the businesslike attitude of the supervisory and instructional force, the "snap and go" of the enterprise creates a satisfied feeling in the student which keeps him "on his toes" and pulls him over the troublesome and discouraging points in his studies. Moreover, poor school conditions always prove to be bad, and good conditions always prove to be good, sales assets.
9. *Better working conditions.* All the foregoing considerations seem to show that in the centralized building the working conditions will probably always be far better than those afforded for scattered courses in neighborhood school-houses. Since the time and effort of evening school students represents such a great sacrifice after long hours of work, and since the help they want is of so great importance in their lives, it is most important of all that they be taught under conditions that make for efficiency in teaching and success in learning. Better to travel more and get more than to travel less and get less.

Choice between Buildings

Frequently a choice must be made between this, that, or the other quarters for an evening school. As has already been shown, a great many considerations may enter into this decision, such as accessibility, economy in equipment, economy in operation, ef-

iciency in administration and supervision, and the like. Other things being equal or nearly so, we believe that such a school should be located in these buildings, preference being given in the descending order named:

1. A building used in the daytime as an industrial or trade preparatory school
2. A building used in the daytime as a technical high school
3. A senior high school building in which mechanic arts work is taught in the daytime
4. A junior high school building in which manual arts or pre-vocational work is taught in the daytime
5. A regular high school building

Reasons for the above rating can only be briefly stated. All elementary school buildings are totally unsuited for use by adults and should be avoided. From seating to wash-rooms and hat-racks, everything is of a child's size and cannot be changed. Entirely aside from this point, however, the psychological effect upon the morale of the adult is very bad, because he resents more than any other type of learner being treated as a child or even as a school-boy. A regular high school building which provides no training in drawing or shop subjects affords but few, if any, more facilities than the typical elementary school except that its accommodations for adolescents come nearer to meeting the needs of adults. A junior high school which gives pre-vocational training in industrial subjects is better adapted than such a regular high school, because it is already equipped with some drawing, and possibly also some usable shop, facilities. For the same reasons, a senior high school offering some training in the mechanic arts is preferable to a junior high, but is usually not to be compared with a well-equipped technical high school. It would seem unnecessary to argue here that the best place, wherever it exists, to use, as the center for extension training through evening classes of employed wage-earners is the same building which is utilized during the daylight hours for the training of beginners in the industries and trades.

Special Centers

In cities of over 200,000 people, experience points to the need, not of scattered neighborhood classes, but of additional centers as soon as the demand for training at least justifies this step. The question here is whether to duplicate in each new center the work of the present center or to specialize in the training rendered by each. As an illustration, one center might be devoted to the building trades and held in a trade-school building where the best facilities in these lines were available. Another could specialize in the electrical trades, another in printing, another in the metal and allied trades, and so on. In very few places has the evening industrial school expanded to the point where such specialization is feasible even if specially equipped buildings for special trades existed on such a scale as is described above. In a few large cities, there is a very decided tendency in this direction.

It seems clear that when an additional center duplicates, generally speaking, the work of the parent center, the largest gain results from its location at some spot nearer to an unserved and therefore new body of customers—a step that is often justified even at the expense of other considerations. Where special centers for special lines of evening school instruction are feasible, however, the location is determined by the location of the building in which facilities for these lines are available and not by the residence of customers. But what is lost in accessibility is more than offset by greater economy and efficiency in instruction. In general, we believe in special rather than general evening school centers where these are feasible and the demand justifies their establishment.

Summary.—We should now be ready to set up in a chart some of the comparative advantages of the centralized and the district plans of evening industrial schools, leaving to the next chapter the consideration of building auxiliaries such as seating, shops, laboratories, library, and the like.

QUESTIONS

1. As an evening school director you have been offered any one of several buildings for an evening school center. On the basis of what considerations would you make your choice?

CHART VIII
COMPARATIVE ADVANTAGES OF CENTRALIZED VS. DISTRICT EVENING INDUSTRIAL SCHOOLS

<i>Centralized</i>	<i>District</i>
1. Greater economy in special building equipment	1. Accessibility to people of neighborhood
2. Greater economy in special teaching equipment	2. Greater neighborhood contact
3. Greater economy in overhead costs	3. Better advertising of work in neighborhood
4. Greater economy in administration	4. Greater neighborhood interest
5. Greater economy in supervision	5. Better neighborhood support.
6. More efficiency in administration	
7. More efficiency in supervision	
8. Less student-hour cost of operation	
9. Better morale of students and teachers	
10. Better working conditions as to:	
a. Lighting	
b. Heating and ventilation	
c. Seating	
d. Teaching equipment and apparatus	
e. Instructional material	
f. Library	
g. Cafeteria	
h. Check-room accommodations	
i. Gymnasium	
j. Stores department for students' supplies and for school	

2. For any given situation in a community, where you must decide as between the policies of centralized vs. district buildings, in what order would you rate the following items as deciding factors: accessibility, cost of building operation, cost of administration, cost of equipment, adequacy of equipment, proper grouping of students, avoidance of too-small classes, avoidance of too-large classes, publicity, and morale?
3. Discuss the centralized vs. the district building from the standpoint of costs and results in administration and supervision.
4. Discuss the centralized vs. the district building from the standpoint of costs and results in providing or using adequate teaching equipment.
5. Discuss the centralized vs. the district building from the standpoint of efficient catering (service) to the occupational needs of students.

CHAPTER VII

BUILDING AUXILIARIES

In the previous chapter, the problems involved in selecting and locating a building for the evening industrial school were discussed. This chapter deals with the proper equipment for such a building and therefore with all such matters as seating, library, cafeteria, social rooms, locker-rooms and check-rooms, wash-rooms and toilets, and purchasing and stores department.

Seating

Of course, it is unthinkable that any building should utilize two complete and different outfits of seating, one for the day-school and one for the evening. Aside from the double cost of the equipment and the expense of shifting the seating twice each day, no space is available for storing either set of seating while the other is in active use. For the most part, the same seating must be used for both schools. As has already been pointed out, when an elementary or junior high school building is utilized, all seatings are too small for adults. When the senior high school is used for evening school, the seats, although not as large as they really should be for adults, will usually serve as to size. Too many of these buildings, however, are still equipped with the typical pupil's desk having a hinged seat attached. These desks, although more comfortable as to size, are just as unsatisfactory as the same kind of accommodations in the lower schools. As John Dewey has said, such seatings are built for suppression and listening, not for thinking and doing. Adults do not like them. They make the class look in all its aspects too much like a children's school, and their psychological effect on learners is bad. Consequently whenever possible they should be avoided.

Arm-chairs vs. tables.—The proper equipment for any school for adults is either a chair having a broad arm on the right side on which students can place and use material, or study tables with

separate chairs for seating. For the most purposes, the arm-chair is preferable. There is a lower first cost of installation. Less space is necessary for seating any given number of persons. A better arrangement of pupils is possible. All pupils, to illustrate, can face one way, but full use of the tables places them face to face and back to back. A room can be made more comfortable for a class of standard size. As arm-chairs are usually fastened together in sections of from three to six seats, there is less noise and confusion than with the constant shifting of the detached chair at the stationary table. Usually, too, they give the student a more natural and comfortable position. Finally, as some one aptly said, "they prevent elbow loafing," which is an objection often urged against the table-and-chair scheme.

On the other hand, the tables also have advantages for certain work. They are necessary in all such classes as these: drafting, sketching, blue-print reading, design, show-card writing or in any other subject in which students do a considerable amount of extended work of any kind on large sheets, or must consult a considerable number of reference books and pamphlets. Special combinations of tables and seatings are necessary for some of this work. In drawing, to illustrate, the table should be high and have a sloping top of the adjustable type, and high stools should take the place of chairs. Likewise with show-card writing and all designing. Generally speaking, the special equipment should be similar to that used outside in commercial shops.

Seating for shops and laboratories.—Here there is need for quite a different kind of seating, which may well be either the emergency or short-time seating equipment. At times it is necessary to call together the students of the shop as a whole or in smaller squads. A demonstration of a process needs to be made. Common troubles need to be discussed. Preliminary explanations and instructions about jobs need to be made, and so on. The best place for this is a corner of a shop. This is the proper place to teach many things anyhow. This sort of instruction is effective in proportion as it is given when needed—as the job demands or in an emergency. As the time cannot be planned in advance, such gatherings in the shop do not occur at regular or stated times, but irregularly.

Obviously no regular class-room can economically be held available at all times for such contingencies. A corner of the shop is always ready. Other rooms are then made available without interruption for other purposes.

This emergency equipment for the corner of the shop should be very simple. A blackboard on an easel and plain board benches or simple short-legged stools or folding chairs fill the bill. As they are for short-time use, they do not need to be devised specially either for looks or for special comfort. Better keep the shop student on his toes as it were than too comfortable in the midst of an evening of shop activities. This equipment has the triple virtues of constant readiness, economy in cost, and economy in the conservation of space.

Sound policies in seating.—Should all this seating be bought or made? By all means, chairs and stools should be purchased. Bought ones will not only be better made but cheaper. Drafting and similar tables can be just as well made at much less cost if the school system has the shops and equipment to do this. Usually a city school system can do this in its mechanic arts or trade education work.

What shall the administrator of an evening school do when he faces existing conditions as to seating for his new work? Avoid elementary and junior high schools to be sure. Centralize the service in one building if possible. Other things being equal, take a building with arm-chairs and tables instead of desks. If none is available, ask for a reseating in the building and the shifting of the desks to some other building as unfitted for evening school work. Convince your superior officers that your proposal will result in better accommodations for high school students as well as evening school students, and that the latter are entitled to at least one school building where accommodations are provided suitable to adult learners. Adult seating can be used for adolescent classes better than adolescent seating can be used for adult classes.

Library Facilities

Every evening industrial school has need for a good library service. The special books, journals, magazines, and pamphlets

on practical and technical subjects which are of interest and value to the evening school student in any line or course offered should be made available to students and to instructors. By the open-shelf system, this material would be of ready access to him before his class begins, at recess, and after the close of the class. He should also be permitted and encouraged to take home with him as a help in his home study or for general improvement in his occupation any printed material he desires. Experience has shown that such a library does not serve successfully as a distributor of general library books. It is a mistake to mix the two services, as the best results are gained when the library of this kind of a school confines itself to reading-matter bearing on trade and technical subjects. In this service, a library can be made of inestimable value.

Special attendant.—Where the day-school of the same building operates a library, the same facilities as to shelves, reading tables, distribution counter, and the like can be employed. For the evening school a special attendant should be employed, one who is familiar enough with trade and technical problems and literature to help students intelligently in finding what they want.

Usable material.—It is very easy to spend money for imposing books and periodicals and thus fill the shelves of the library with a mass of material which students do not need or cannot use with profit. Close team-play, under the direction of the supervisor, between the librarian and the instructors in each line of employment represented in the school is necessary in order to secure the kind of printed material which instructors need for their duties and which students require. In some systematic way, the library should keep up with new technical books in every line, rejecting those which will not help and adding those which will. This is just as necessary with magazines, journals, and other trade publications. For this purpose, a small but definite sum should be set aside in the evening school budget and be expended every year without fail. In some places very good results have been secured, where a progressive public library system has coöperated with the evening school by taking charge of the library of the evening industrial school.

The library should be open not later than 5 P.M. so that students coming directly from work may be served or may use the reading-

room facilities. The service should not close until thirty minutes following the customary closing period of classes. No room in the building requires good illumination and proper heating and ventilating more than the quarters of the library.

Cafeteria

The main purpose of this service is to insure prompt and continuous attendance by students. By coming directly to the school from work, they save time, effort, carfare, and the wear and tear of rush. This attracts and conserves them. Other things being equal, a building should be utilized which operates some kind of lunch-room in the daytime. Where this accommodation does not exist, it will pay any evening school of moderate size to provide this feature. It always yields rich returns in better morale of the student body.

A cafeteria can easily be made self-supporting which is patronized nightly by a minimum of 100 students. It can be made to pay the cost of food, necessary wages, and replacements of kitchen and dining-room equipment. To do this, only a simple bill of fare should be attempted, and no more is necessary; students should wait on themselves, student labor should be utilized as far as possible, and all employees should be paid by the hour. There should be service from 5:30 to 7 P.M. In a large school where many classes are operated on a four hour per night schedule, an 8:30 lunch period will also be patronized.

Social Rooms

Students must have some place to go when they come to the building. Many an evening school has failed to increase its service because rules and regulations prevented the opening of doors until just before class-time, and others have suffered because there was no comfortable place for students even when the building was open earlier. Certainly evening school quarters should be open not later than 5:30 P.M. and preferably at 5. Where the facilities are available, students will naturally distribute themselves, on arriving, in the cafeteria, the library, the showers, the game and recreation rooms, and the like. Some day every evening school building will

be so ordered that it will serve in effect as a Workmen's Club. Why not? Some place to smoke before class and during recess should certainly be provided. We are not dealing with "kids," but with human beings as they are. All these conveniences add, of course, to the overhead of the school, although the total cost is comparatively low for light, attendants, and space.

Common experience in the evening industrial school shows lack of interest in athletics so far as participation by evening school students goes. They are tired, and most of them are beyond the age of athletic contests in indoor sports. Because the classes meet only one night or at the most two nights per week, their presence at the school is limited to a very few hours. They feel that they must use the time for learning and conserve their energies. Without doubt also, shifting classes, along with the limited and non-continuous hours and weeks of attendance, prevents the contact between students, the acquaintanceship and solidarity necessary to develop departmental or school spirit in athletics. Evening recreation centers for employed people are desirable and successful when they are operated on the same generous plane as similar day-school activities, but they reach others than those who at the time are trying in a serious-minded way to improve their skill or knowledge in a breadwinning occupation.

Locker-Rooms and Check-Rooms

Most evening schools are held during the fall and winter months. Some provision must be made for students' coats and hats, lunch-boxes, and other personal belongings. These should not be piled indiscriminately in class-rooms or hung in open corridors. Either arrangement causes confusion and controversy, is unsanitary, and results in losses by theft. There are only two possibilities here—a personal locker for each evening school student or a check-room service.

So far as the service itself is concerned, the personal locker is undoubtedly the best arrangement. But it requires a complete equipment of lockers for evening school students exclusively. The lockers of those using the building during the day cannot be utilized. The large initial cost of a suitable locker, from \$3 to \$8,

makes the device prohibitive because of the small maximum number of hours it would be used by any student during any twelve months. To this should be added also the cost of providing floor-space for the lockers. When the evening school enrolment is large, these costs become formidable. When lockers are used for the convenience of the evening school student, it seems only fair that he should pay a rental fee sufficiently large to liquidate all or a large part of these costs in a reasonable number of years.

The most practicable and therefore best scheme is the check-room. As compared with the locker plan, the original cost is negligible. But little more is needed than a comfortable room, a table or counter across the entrance door, hooks on racks, and properly numbered and pigeonholed bins for packages, such as overshoes and the overalls of students in shop work into which they change when they come to the building. Cost of operation is slightly greater than for lockers, but this too is comparatively small, as it includes little more than the wages of an attendant.

Wash-Rooms and Toilets

This feature is not so important to the evening school administrator, because most modern schools contain proper accommodations. They should be decent and adequate, and evening school students should be required when necessary to keep them in proper condition. In any event, some sort of towel or drying machine should be provided.

It may be well here to give the recognized standard for school buildings: one toilet for each twenty-five boys; one urinal for each twenty boys; and one toilet for each fifteen girls. Where the conveniences on this scale of any building are fully open to adults, the provisions would usually be more than ample.

Purchasing and Stores Department

Where the evening industrial school is located in a central building, a purchasing and stores department should be established there. This is very easy to do in the case of a privately endowed school all of whose work including its offices are located in the same building. In practice, the administrator of a public

evening school runs across considerable difficulty with the business department of the schools and its central store. In the praiseworthy effort to secure economy in purchasing and the control of all stock so that it may be systematically distributed on requisitions and checked, the general tendency is to resist the establishment of any subordinate stores service. Instead supplies of every kind are usually shipped to buildings in smaller quantities and at frequent intervals and there usually distributed as needed to classes.

School supplies.—For a number of reasons this arrangement does not meet the evening industrial school requirements. Obviously its stock needs to be kept separate from that of the day-school. Because it holds its sessions at night when the main stock-room of the school system is closed, there is no economical or speedy way by which emergency orders can be filled or mistakes or neglect in shipments can be remedied by a hurry-up call and rapid response. Some stock doubtless is common to both evening school and day-school needs, but an evening school of any consequence has its own special requirements in all kinds of materials, tools, textbooks, and the like, and these cannot be met by the customary policy of shipping something else just as good. Workers are accustomed to see such matters handled promptly and efficiently in shops and are impatient over delays and unsatisfactory service which wastes precious time waiting for necessary teaching material or devices. This is just as true of tradesmen serving as instructors as it is of students.

It must be remembered also that the only place where supplies and tools to be purchased by students can be made available to them in any satisfactory way is through a purchasing and stores department in the building to which they can go before classes begin, during recess, or at the close of the session. Scattered as they are geographically, the right kind of materials and equipment for them to purchase can only be controlled by such a department.

In a privately endowed school the problem is quite easily handled. Quantity purchases are made so as to get a favorable price. It is easy to "keep track of where you are." Inventories

are easily made. Wastage is avoided from shipping material out to other schools which often lies on shelves unused. Money is not tied up in surplus stock. An efficient and certain use is secured of old materials, tools, and the like, since new purchase orders are not placed until the old supply is exhausted. Exactly what is needed is on hand for use by office, instructor, or student. In other words, such a department is immediately responsive to the needs of the school and serves it as it should be served.

Students' supplies.—There is need for all sorts of learner's equipment from note-books to drawing instruments and special tools or kits of tools. If they are available at the stores room, they will be purchased and used; otherwise not. Some arrangement should be made so that these are sold to the student at the school. Imagine telling him that he can get them during working hours if he will call at the offices of the Board between nine and five! The best plan is to give him an advantageous price, but to sell at a profit over and above actual cost sufficient to pay handling charges. This usually means just about splitting the discount with him. These student sales should be under the control of the purchasing and sales department, which if it sells directly from its quarters, should have a well-lighted room somewhere in the building to which students can go as to any other counter and get what they want. Often the evening school desk clerk at the office on the main floor serves as a sales agent of the purchasing and sales department and distributes students' supplies across the counter.

Few things will contribute more to the efficiency of the evening industrial school than an adequate and properly organized and operated department of this kind. The administrator of such a school should fight until he gets it. He needs a special item in his budget for evening school supplies, special tools, equipment, and the like, which are to be used by the employees of the school and handled by such a department. And he needs another item to take care of the purchase for sale of students' supplies and equipment.

There is no reason why he should not secure from the general stores of the school system any materials or equipment which meets his needs and thus have his order a part of the larger pur-

chasing which secures a lower price. But he needs to be free to purchase elsewhere and in quantity whatever he needs that the general stores do not carry. He certainly should not be put in a position where the business department of the school dictates to him what he must order and use.

In Chapter XX, the organization and operation of the Purchasing and Sales Department of the evening school will be considered. In the next chapter to this one, attention will be given to the very important problems of lighting, heating, and ventilating the evening school building.

QUESTIONS

1. You have established an evening school center as a going concern and you have been assured by superior officers that you can secure an increased budget for the asking. Thus far you have not provided for any of these auxiliary services in the school: library, lunch-room, check-room, gymnasium, recreation rooms, and stores department. Should you ask for more money to provide additional classes or to provide these auxiliary services? Give a reason for your answer.
2. Assuming that you provide for at least the gradual introduction of such auxiliary services, in what order would you establish them? Why?
3. If you were discussing the centralized vs. the district building, what arguments would you make regarding the comparative cost and efficiency of the two plans in handling school and students' supplies?
4. As director, you have been assigned a certain building in which to conduct evening industrial classes. Upon investigation, you find that it is equipped with seating for children only. What are you going to do about it?
5. You have been assured of a small annual allowance for the purchase of books, pamphlets, and the like for a special working library in the evening school. What kind of material would you purchase, and how would you determine what to purchase?

CHAPTER VIII

LIGHT, HEAT, AND VENTILATION

In distinction from the building equipment discussed in the preceding chapter which is used by students, this chapter deals with the building equipment which produces a service that is consumed or expended as it were by the building in order to produce proper working conditions.

Lighting

Poor lighting will kill off an evening school about as quickly as any other known cause. Mechanics use their eyes continually when at work. Not long will they attend an evening school where they are subjected to additional hours of eye-strain, to say nothing about their dissatisfaction because they cannot see clearly what is on the blackboard or in print or what they are doing in the shop. Until it is used as an evening school, a school building is seldom properly or adequately equipped with lighting facilities. This is the task and opportunity of the administrator of the evening school. Before the evening school is started, he needs to insure proper illumination in general for the service he plans and to make such changes from time to time as new classes and changing conditions demand. Of course, old buildings require extensive installations, while new ones at the best need many special adaptations of their lighting service.

No professional educator is at the same time an expert in illumination, but there are some things he needs to know. These will teach him the necessity of employing expert service for any special or peculiar problem and of consuming such service intelligently. They will also help him to deal directly and intelligently with more simple and ordinary problems.

In the effort to help him in this way, we have quoted freely from a booklet, "Code of Lighting School Buildings," describing the

American Standard, which was prepared under the joint sponsorship of, and issued by, the Illuminating Engineering Society and the American Institute of Architects (1924). This publication was approved June 16, 1924, by the American Engineering Standards Committee. The interested reader should also be equipped with at least three bulletins published by the Engineering Department of the National Lamp Works of the General Electric Company: "The Lighting of Offices and Drafting Rooms" (May 31, 1928); "Fundamentals of Illumination," (January 1, 1927); and "Illumination Design Data for Industrial and Commercial Interiors" (September 15, 1927).

Whenever possible, electricity should be used in preference to any other source of illumination. It is usually most available. In fact, all other means have virtually disappeared from school buildings. It is cheapest to install and maintain; more healthful; more efficient; and more flexible because of the greater ease with which any service can be shifted or extended. Usually current is supplied by a public utility company. Sometimes school plants generate their own power, which of course should be utilized.

Measuring light.—This is done by an instrument called a photometer. Its other name is foot-candle meter. We are not concerned here with the way in which it operates. Any one can readily learn to use it, and certainly there should be one available for use in the evening industrial school, at least until standards are set. As the name implies, it measures the number of foot-candles of illumination falling upon a given place in a room, such as the top of a desk. The unit of candle-power is substantially the average intensity of the old standard sperm candle. A foot-candle is the illumination equivalent to the light produced by one standard candle falling upon a square foot of surface, one foot away from the candle. We need not go into the technicalities of this. It is sufficient to say that the foot-candle meter measures the foot-candles of illumination at the point where the meter is placed, and that the standard numbers of foot-candles which should be observed for different purposes have been determined. The following chart gives the standards in foot-candles for different demands:

CHART IX ¹
THE MINIMUM REQUIRED VS. THE RECOMMENDED FOOT-CANDLES

(Measured on the plane of desks and stair steps and from thirty inches above the floor of auditorium walks, playgrounds, and the like)

	<i>Minimum required foot-candles</i>	<i>Recommended foot-candles</i>
<i>On the space</i>		
Walks, drives, and other outdoor areas, if used at night.....	0 1	0 5
Playgrounds, outdoor, if used at night.....	0 5	2.
Playgrounds, outdoor, if used at night for baseball, basket-ball, etc.....	5	10.
Storage spaces, passages, not used by pupils.....	0 25	2.
Boiler-rooms, power-plants, and similar auxiliary spaces.....	1.	3.
Stairways, landings, corridors, aisles, exits, elevator cars, wash-rooms, toilets, locker spaces, dressing-rooms.....	1.	3
Recreation rooms, gymnasiums, swimming-pools.....	3.	7.
<i>On the work</i>		
Auditoriums, assembly-rooms.....	2.	3.
Auditoriums, assembly-rooms, etc., if used for class or study purposes.....	5.	10.
Class-rooms, study-rooms (desk tops).....	5.	10.
Class-rooms, study-rooms (charts, blackboards).....	3.	6.
Libraries (reading tables, catalogues).....	5.	10.
Libraries (bookshelves, vertical plane).....	3.	6.
Laboratories (tables, apparatus).....	5.	10.
Manual training rooms, workshops, etc.....	5.	10.
Drafting-rooms, sewing.....	8.	15.

¹ "Code of Lighting School Buildings," p. 5, American Standard (Illuminating Engineering Society and the American Institute of Architects, 1924).

CHART X

CONDITIONS AS TO LIGHTING IN THE _____ EVENING INDUSTRIAL SCHOOL

_____, 19—

<i>Conditions</i>	<i>Good</i>	<i>Fair</i>	<i>Unsatisfactory</i>	<i>Specific trouble</i>	<i>Cause</i>	<i>Remedy</i>
1. Amount of candle-power 2. Provisions for avoiding glare 3. Provisions for special lighting for special rooms 4. Provisions for exit and emergency lighting 5. Inspection and maintenance 6. Light service for blackboards 7. Provision of switching and controlling devices 8. Provision of outlet and plug boxes for special uses 9. Light reflecting conditions of walls and ceilings 10. Proper distribution of light 11. Cost of operation per space illuminated 12. Economical operation of lighting service						

Lighting systems.—Three distinct systems are in use: direct, indirect, and semidirect. You have the direct plan when the light from a lamp under a reflector is reflected downward. You have the second when a bowl beneath the lamp reflects all light to the ceiling, which in turn reflects it downward to the room. You have the last when the lamp is surrounded, let us say, by a porcelain globe which diffuses the light in all directions. Each of these plans has its special advantages and special uses which are fully discussed in the "Code of Lighting School Buildings," reference to which has already been made.

Ordinary class-rooms require one kind of lighting, usually directly overhead. Shops, to illustrate, usually want direct lighting overhead, with extension lights for close work. Drawing-rooms require overhead fixtures placed in front of rather than behind the students so as to avoid shadows. This is also true of show-card writing and other similar subjects. Every one agrees that lamps with frosted tips should be used instead of plain bulbs in all direct lighting, and that all such lighting should be shielded from above by shades so as to reduce the glare. Just what plan should be used and how lamps should be spaced and hung is a problem for the expert, experienced in such matters. Just what costs should be incurred depends on the budget. Any evening school director, unless he is an expert in illumination, will be very foolish to undertake the lighting of any room or shop without the help of some experienced person. Where there is an electrician on the day-school force or even on the evening school faculty, much would be gained by giving him the responsibility subject to approval and causing him to acquire the knowledge in this duty through experience aided by the best assistance available.

There are many perplexing problems and difficulties involved in the task of securing proper and adequate illumination for the many different kinds of activities in the evening industrial school, but the successful effort to solve them is a vital contribution to the efficiency of the work. As some help in dealing with these problems and difficulties, the following references are made to the "Code of Lighting School Buildings."

<i>Subject</i>	<i>Pages</i>
1. Illumination required.....	4, 8, 15, 26, 27, 31
2. Avoidance of glare.....	4, 8, 15, 26, 33, 37
3. Distribution of artificial light ..	6, 8, 15, 26
4. Color and finish of interior.....	6, 9, 15, 26
5. Switching and controlling apparatus.....	6, 9, 37
6. Exit and emergency lighting...	6, 9, 37
7. Inspection and maintenance ..	7, 9, 37
8. Blackboards..	7, 9, 39

In conclusion, two other matters should be touched upon. One is the great desirability in installing any lighting system for an evening industrial school that many instead of a few switch control points be installed so that small instead of large groups or banks of lamps are on one switch circuit. In this way a far more economical use of current will be secured. The other matter is something partly independent of the lighting program. That is the necessity for convenient outlets or plug boxes in rooms, preferably near the floor, to which extension cords can be attached for lantern service and inspection lamps, and for current to be used in operating small motors, in demonstration work and other similar purposes.

Heating

As the evening school is most frequently a fall and winter affair, proper heating and ventilation of the building is an important problem. Of course, the heating system used during the daytime must be utilized at night also. All that is possible at the best is to get good results from the existing heating plant, by good management. It is quite probable that during this current year somewhere in America all of these heating devices are in use for evening schools: stove, jacketed stove, hot-air furnace, steam, hot water, and vapor. More certain still, heat, however generated, is being circulated and ventilation secured after a fashion at least in these different ways: open window; gravity system with hot air; and motor-driven fan forcing or pulling heated air in some kind of an indirect or direct-indirect system. We are here concerned with what the administrator of the evening school and his staff need to know, not as experts on heating and ventilating, but as laymen forced to make intelligent use of an existing system.

Temperature should be regarded as an efficiency item in every evening school. Low temperature and high temperature, below or above the standard, affects the teaching efficiency of instructors and the learning ability of students; and in addition, unnecessarily high temperature means waste of fuel and increased overhead. The standard temperature for school-rooms is not less than 68° nor more than 72° Fahrenheit. That for school shops or commercial shops is usually not less than 62° nor more than 68°. Greater activity requires lower temperature to get the best results. Even when a good modern heating plant has been installed, thermometers in school-rooms usually register an amazing variation or range of temperature. This is, of course, due in part to such things as the difference in location of two rooms, one being exposed to prevailing winter winds, let us say, and the other somewhat sheltered. But it is also caused by unreliable thermometers. These are "installed chiefly for the purpose of enabling janitors and teachers to regulate the heat and ventilation in class-rooms." If they prove unreliable so that "the teachers have no confidence in them because of their variation in quality and efficiency, their reason for being a part of the school equipment no longer exists. The purchase and supplying of a recognized standard thermometer for every room without thermostatic control is advised."

"The readings of the dry-bulb thermometer of the sling psychrometer used in determining the humidity of class-rooms will give a far better index of the control of the heating system than merely the readings of the class-room thermometers."²

The special difficulties of evening school heating.—Because of their varying schedule, few evening industrial schools ever occupy every room in a building every night and seldom on any given night. Even with the best of heating plants, this varying demand requires a systematic scheduling of rooms, nights, and required temperatures for the guidance of the engineer of the building and eternal vigilance by him and by supervisors to see that this schedule is observed. The general tendency is to keep the entire building at a low temperature so as to reduce fuel costs, when the greater

² George D. Strayer and N. L. Engelhardt, *St. Paul School Survey*, Part I, "The Administrative Problem," pp. 99-100.

economy would result if unused rooms and parts of the building were kept above the freezing-point, and proper heat were given only to quarters in use. Fortunately, all modern school buildings provide valve intake and exit controls in their heating systems. In some cases where definite quarters are used in a very large building, and much space is entirely unoccupied at night, much would be gained by a special heating line to serve only these quarters.

It is the responsibility of the engineer and his assistants to maintain agreed temperatures for classes, hallways, and the like, according to the schedule in force. Reliable thermometers should be read several times every evening. It is the business of the educational officer responsible for the evening school to see that this is done. For such a check-up the recording thermometer is the best device because it admits of no disputes. In the absence of such a recording device, a sample reading at a stated time of each thermometer for a period of one month will usually reveal conditions to be remedied.

Where the heating plant provides either an indirect or a direct-indirect system of heating and ventilating, the problem of adjusting the temperature and air conditions to the particular requirements that exist or to the preferences or notions of the instructor and his class presents of course some difficulties. Undoubtedly individuals differ with regard to the temperature at which they feel most comfortable. The best results come where thermostatic control maintains the room at an agreed temperature. Obviously this point cannot be set differently for each night in the week to suit each group. Here the best policy would be to set the thermostat mechanism to a stated degree of temperature and insist on a policy of hands off. The results should be checked at intervals, however, by a reliable thermometer.

Where such a control does not exist and cannot be secured, the problem becomes more complicated. The heating mechanism is not automatically responsive to changing wind and weather. Adjustments must be made in the amount of heat admitted and in the circulation and ventilation to relieve temperature when too high. These adjustments should be controlled by the instructor,

never by students, and a policy for this should be worked out with the engineer.

Special problems.—One of these is hours of demand. When does the class meet, at what hour and for how many hours? At what time in the evening should the room be heated to a scheduled degree? These are questions which involve not only the efficiency of the instruction but economies in management. Not only must shops be maintained at a lower temperature than the ordinary class-room, but some shops and laboratories require special temperatures in the heating of certain materials. A bake-shop, to illustrate, must maintain its dough room at not less than 72° and not more than 76° , while its oven room must show not less than 72° and not more than 80° . (See also "Humidity" in this chapter.) In job presswork, a temperature of not less than 72° must be maintained.

Hours of demand.—Because of the varying hours of classes and the varying demands on temperature for different kinds of classes, there should be a schedule set up for the guidance of the engineer in order to insure control, both for efficiency and cost reduction, of the heating service for each room. Such a schedule will be found on page 94.

Whatever its form, the engineer should have from his superior officer some such definite schedule showing hours of use of classes and shops and the temperature required. He should also have definite notice at least of any changes in the arrangements. Better still, he should have a new schedule at least once each month and supplementary notices of changes occurring during the month. Equipped with this, the engineer and his assistants can set up a definite program of service and follow it until notice of change. Some rooms can then be made ready at 6:00 P.M., others at 6:30 or at 7:00, and so on. When classes close at different periods, the heat can be shut off. On nights when certain rooms are unused, they will not be heated. It is a sad waste of money to heat vacant quarters. Finally, the responsible officer of the evening school can easily learn whether the schedule is being followed.

ADULT EDUCATION

CHART XI

ROOM TEMPERATURE STANDARDS

To: _____ Building Supt.
 From: _____ Director of Evening School

Temperature Chart

The following class-rooms and shops are to be heated to temperatures, indicated during class hours and on evenings as indicated. Effective October 15, 1929, until further notice.

<i>Class-room No.</i>	<i>Hours</i>	<i>Days</i>	<i>Min.</i>	<i>Max.</i>
101	6.30-10.30	Mondays, Thursdays	68	72
107	6.30-10.30	Tuesdays, Fridays	68	72
114	7.00-10.00	Wednesdays	68	72
150	7.30-9.30	Mondays, Thursdays	68	72
151	7.00-10.00	Tuesdays	68	72
152	7.30-9.30	Fridays	68	72
206	6.30-10.30	Tuesdays, Fridays	68	72
210	7.00-9.00	Wednesdays	68	72
251	7.30-10.30	Mon, Tues., Fri.	68	72
254	6.30-10.30	Mon., Thurs, Fri.	68	72
256	6.30-8.30	Tuesdays, Thursdays	68	72
<i>Shop</i>				
Machine	6.30-10.30	M., T., W., Th., F.	62	70
Auto	6.30-10.30	Mondays, Thursdays	62	70
Welding	6.30-10.30	M., T., W., Th, F.	62	70
Bake	6.30-10.30	Mon, Wed, Thurs.	72	80

Humidity

By *humidity*, we mean the amount of vapor (moisture) contained in a body of air as compared with the total amount which that air could contain or hold. When this humidity falls much below a given point or standard, it produces restlessness, nervousness, and nose and throat troubles. The standard is 40 per cent of vapor in very cold weather and 50 per cent in ordinary winter weather. By this is meant that the amount of vapor present is 40 per cent or 50 per cent of the amount which the air would hold as a maximum. The condition of the air as to humidity is determined by the use of an instrument which is known as the sling psychrometer and which is or should be available in the engineering equipment of any school system.

If readings are taken in different school-rooms of a building,

they will tend to vary greatly where the heating system used is stoves or a hot-air furnace, and to vary but little where a direct steam or vapor plant has been established or with any indirect, or direct-indirect system of mechanical heating and ventilation. With these, the humidity can usually be increased or decreased at the point of intake of air. All stove heating schemes usually result in poor humidity. The only feasible correction of the conditions is to place in the rooms open pans of water the evaporation of which supplies to some extent the missing moisture. Even in rooms heated directly by radiators, pans of water are frequently kept on top of them. For some shops and laboratories, special humidity devices are necessary to get satisfactory results where greater humidity is required for the materials and processes used. This is true, to illustrate, for bake-shop work or job presswork.

Ventilation

No less important is the whole matter of ventilation. Here the standard requirement is 3,000 cubic feet per hour per person for change in air—a very difficult kind of standard for evening industrial schools where classes occupying the same room vary so greatly in size as between courses and from evening to evening. The instrument used to measure the amount of change of air is called an anemometer, and there are a considerable number of different kinds available. Here again every school system has or should have one. Indeed, so should every building. Wherever used, the anemometer usually shows an amazing range in the number of cubic feet of changed air for different rooms. Where mechanical ventilation is employed, this amount can be controlled within limits. But where stoves, direct radiation, or a gravity system is employed, this cannot be done. The modern method of ventilation is washed air. This provides air that is not only pure but also of proper humidity.

Notwithstanding all this, it is the duty of the evening school administrator to protect his students against unwholesome air or worse. From the standpoint of improving results in teaching, careful attention to the problem will richly repay all such efforts. The problem here is not one of saving waste. Indeed all improvement in ventilation, during cold weather particularly, costs money

CHART XII
CONDITIONS AS TO HEATING AND VENTILATING IN THE _____ EVENING INDUSTRIAL SCHOOL
_____, 19—

<i>Condition</i>	<i>Good</i>	<i>Fair</i>	<i>Unsatisfactory</i>	<i>Specific trouble</i>	<i>Cause</i>	<i>What to do</i>
1. Degree of temperature 2. Regularity of (heat) temperature 3. Condition as to humidity 4. Promptness of service (heat) 5. Condition as to change of air 6. Special ventilation for special shops and laboratories 7. Special heating for special shops and laboratories 8. Reliability of temperature measuring devices 9. Cost figures for heating per space served 10. Efficiency of the human control system over heating and ventilation						

because fuel in the form of heated air is expended by getting rid of it more frequently. Ingenuity devises many ways to get comfort and better air through special devices such as forced ventilation, washed air, window exits and intakes of air, intakes to radiators, boxed-in radiators, and the like.

A checking sheet on heating and ventilation.—It is possible to draw up a checking sheet as an aid in inspecting the heating and ventilating conditions of a building and as an aid in troubleshooting to determine and remedy the trouble (see page 96).

Summary

At this point we should be able to set down a summary of the main points that should be checked by a supervisor in estimating the suitability or efficiency of a building to be used or in use as quarters for an evening industrial school. This can be done in the form of a chart such as is indicated on following page.

Having discussed the physical conditions necessary to the success of the evening industrial school, the next question, very logically, would seem to be what the school should teach; hence the next chapter on functioning subject-matter.

QUESTIONS

1. As director you have been assigned the use of a school building which has never before been utilized for evening classes of any kind. Set up a plan for determining what further lighting facilities are needed.
2. Assume that in any building assigned for evening school work, the lighting is inadequate and unsatisfactory everywhere—hallways, lavatories, drawing-rooms, shops, and class-rooms—and that the funds available for improving these lighting conditions make it necessary to spread changes over a period of three years. In what order would you make changes in the foregoing parts of the building?
3. You have established a control system over heating and ventilating by putting all regulation of control mechanisms in the hands of the building engineer and his assistants. Instructor A persistently adjusts heat and ventilating controls to suit his own ideas and convenience. What should you do about it?
4. How would you determine the proper temperatures and humidity for different hallways, lavatories, shop, drawing-rooms, and class-rooms, and how would you determine whether these standards are maintained?
5. How would you determine the proper standards of ventilation for different parts of the building, and how would you find out whether these standards are maintained?

CHART XIII

RATING OR WORKING SHEET ON THE BUILDING OF THE _____ EVENING INDUSTRIAL SCHOOL
_____, 19—

<i>Item</i>	<i>Good</i>	<i>Fair</i>	<i>Unsatisfactory</i>	<i>Causes of trouble</i>	<i>Remedy</i>
1. Location (accessibility) 2. Seating 3. Library service 4. Accommodation of wash-rooms and toilets 5. Provisions for taking care of clothing and packages 6. Provisions of stores department for purchases of material and tools by students 7. Provisions of stores department for purchase and distribution of materials, tools, and other equipment to instructors and office 8. Lighting facilities 9. Heating 10. Ventilation 11. Two desirable features: a. Lunch-room facilities b. Social rooms					

CHAPTER IX

FUNCTIONING SUBJECT-MATTER

Any evening industrial class is efficient in proportion as it helps its students to meet the demands of jobs, either of jobs at which they are then employed or of new jobs in the trade or line of employment for which they are preparing. Very specific and concrete, and not general and abstract, are the demands of any wage-earning job. Its proper performance calls for specific habits—for specific manipulative skill in doing the work and for specific mental skill in the use of the specific knowledge which aids in that doing. Not by working as a bricklayer does a carpenter get ahead in his trade, but only as he does carpentry jobs, in the way a carpenter and not a bricklayer works; figures as a carpenter, and not as a bricklayer figures; uses the blue-prints and drawings which a carpenter and not a bricklayer employs; thinks as a carpenter thinks, and not as a bricklayer; applies the practical science which helps a carpenter and not a bricklayer; and uses the trade experience of carpenters, not of bricklayers, to help him at his tasks. Since this is true, an efficient evening school is one which give carpenters what they need in their line and bricklayers what they need in their line.

Usable training.—Obviously this requires a separate class for carpenters and one for bricklayers. But it also requires the teaching to carpenters only of usable skill or knowledge for carpenters and to bricklayers only of usable skill or knowledge in that line. For want of a better name, we have called this usable skill and knowledge “functioning subject-matter.” As we employ the term, this *functioning subject-matter is skill or knowledge which is usable by the learner to whom it is being taught.*

Such subject-matter will function for one trade, but not for another. Usable instruction for a printer, to illustrate, is certainly not usable by an electrician. A course of training may be helpful

to persons employed in one occupation of a business but not to those employed in other occupations of the same business. What a hand compositor in printing needs as a compositor is entirely different from the demands on a job pressman. Likewise a unit course of study may function with one group of students from a given occupation but not for other groups from the same occupation. Beginners in lathe work, for example, need help to meet their current troubles, either with special difficulties in tool work or with the figuring or blue-print reading they must do. On the other hand, experienced lathe men may need practice, under direction, in advanced work or short courses which will help them to master the operations and processes of milling-machines, shapers, or grinders so that they may secure promotion as toolmakers.

Because of differences in ability, previous schooling, or experience, different groups of learners from the same occupation may even require instruction for that occupation on different levels; consequently the content of a particular unit course will vary for the two groups. During a period of two years, to illustrate, one evening school enrolled two different groups of workmen for the special unit course in gas engines. The first-year group soon proved below the usual level in experience and previous technical training, but the next year the new group was found to be above that level. This required the teaching of the unit on a lowered level to the first group, giving more practical work and less theory, whereas the demands of the second group were for more technical and less practical instruction. Experience has shown, moreover, that however well planned, no lay-out of functioning subject-matter by lessons in any unit course meets exactly, without at least slight modifications, the needs of the successive groups of learners who take it from year to year.

The acid test of functioning subject-matter, as we use the term at least, would include these five requirements. Perhaps it would be best to say that the content of any course will constitute functioning subject-matter in proportion as it meets these tests:

1. It provides usable help for the occupation to which it applies.
2. It applies so directly and specifically to the occupation that it has functioning value for this occupation only.

3. It is understandable by the learners.
4. It gives the help needed by the learners to whom it is taught.
5. It gives help which these learners have an opportunity to apply and to fix (applied knowledge with immediate value).

Usable help for the occupation. All knowledge may be useful at some time, but the real purpose of the evening industrial class should be to provide knowledge and skill which are useful (usable) by learners in the occupation or line of employment in which they are already engaged. Undoubtedly this is the purpose for which the federal funds are appropriated and which State boards have accepted in their use of these funds. Local communities are entirely free to operate at their own expense any kind of evening schools they desire, including courses in general education or even courses which attempt to fit novices for wage-earning occupations in which they have had no experience. In their use of moneys allocated from the State board, however, the instruction they provide must be extension in character, extending the skill or knowledge of the learner in the occupation or line of employment he is already following.

Local officials must stand foursquare against the claim that such a class is undemocratic; it is democratic in the highest degree, because it provides the help which a specific group of citizens need for the demands of wage-earning and does not deny to them the help they need by mixing with this group novices who cannot profit by material which functions only with the employed group. Nor must these local officials be disturbed by the claim that education which fits a man for the specific demands of an employment is "narrow"; in the deepest sense it is broad, because it gives training which lasts because it is used and, in the total sweep of unit courses, provides all the usable information drawn from every field of knowledge which will aid the learner in his job. From the standpoint of its isolation from real problems and its lack of usefulness for the real demands of life, general knowledge and not specific knowledge is narrow instead of "broad."

Functioning value for the occupation only. Few will debate any longer the statement that the best results are obtained in evening classes when electricians are taught in separate classes, painters

in separate classes, and so on for all trades. Not many now debate the statement that compositors and job pressmen should be served by separate classes. A decreasing number of schoolmen press any longer the proposal that at least a small number of inexperienced novices be admitted to the special unit courses for experienced workmen in any line of employment. Increasingly it is being recognized that extension training of employed people is efficient in proportion as it meets their specific needs only, for these reasons:

Since the purpose of the evening industrial class is to give the employed learner an additional asset in skill or knowledge which he can use for wage-earning, it follows that this attempt is realized in proportion as the subject-matter taught functions in this aim. It does this in proportion as the learner establishes habits of doing or of thinking with facts regarding the concrete problems of his daily employment. All habits are specific and are developed (established) by practising them in the way they are to be used. Consequently, any course of instruction is effective in developing the habits learners carry out and use to advantage in the job when its subject-matter in skill or knowledge causes them to practise these specific habits in the class. When this is done, the course can have value only to such learners, and all other students in such a class are usually wasting their time and public money by attending. As a matter of fact, when the instruction gives the proper functioning skill or knowledge to the former, the latter will usually soon cease to attend because they fail to profit by the work; when the latter find the instruction of real value to them, the experienced workmen usually withdraw. See also the discussion of general vs. unit courses and of the evening school problems in the smaller communities, which is given in Chapter X, "Courses of Study."

Understandable by the learners to whom it is taught. As we have used the term, functioning subject-matter must not only function in the occupation or line of employment; it must also *function with the learner*. This it will do only to the degree that the skill or knowledge taught is understandable by the learner. In order to make it understandable by the learners of an evening industrial

class, all such things as the following are necessary. Strictly speaking, they constitute ways to make usable subject-matter usable by the learner:

1. Through the proper selection of the learner or learners. This involves all such considerations as are indicated by the following questions:
 - a. Does the learner have the ability to understand the subject-matter?
 - b. Does he have the previous occupational experience necessary to this understanding?
 - c. Does he have the previous schooling or its equivalent necessary to this understanding?
 - d. Does he have the opportunity to apply or fix the new skill or knowledge?
 - e. These efficiency factors are discussed in Chapters IV and V.
2. Through the use of proper methods of instruction. This involves all such considerations as are indicated by the following questions:
 - a. Is the grade of instruction adapted to the level of the learner's ability, previous experience, and previous schooling?
 - b. Is the language used in instruction adapted to the level of the learner?
 - c. Are effective methods of explaining, putting over, practising, and testing skill and knowledge used?
 - d. Are effective devices used for illustrating and applying the subject-matter?
 - e. These efficiency factors are discussed in Chapters XVI and XVII.

Help really needed by the learner. Suppose a unit course has been set up for an occupation and the group of learners have been carefully selected so as to include only those for whom the course is designed. When we look at these learners, we soon discover that they differ considerably as to the particular difficulties which bother them. Sometimes these particular difficulties are due to the learner himself, because in any group, selected largely on the basis

of the occupation they follow, students will differ greatly as to ability, previous experience, and schooling. Sometimes these difficulties are due to unusual problems or situations in the job itself which puzzle or bother this, that, or the other learner. Although the course may deal with matters which affect them, these latter difficulties, being unusual, may not be covered by the instructor unless he is on the alert to bring them out and give the learner special help in solving them.

It is obvious that, in all shop or drawing classes and in any other classes where the student works on an individual problem, the chance is reduced to a minimum that the instructor will fail to detect the particular need or weakness of the learner. On the other hand, where group instruction is given, in shop-knowledge classes, for example, the instructor may not recognize the special need or weakness of different learners. To avoid this, he should set up all such safeguards as the following:

1. Become acquainted with each student at least sufficiently to find out all such fact about him as:
 - a. Where he works and what he does
 - b. What his previous experience has been
 - c. Any peculiar or special features or demands of his work
2. Form an estimate of his grade of ability and learning capacity
3. Get his reasons for taking the course
4. Learn from him the things in his job which bother him most
5. Check him on any special class weakness, such as trouble with the figuring he must do, and arrange for special help on this point
6. Encourage the class in every possible way to ask questions
7. Avoid lecturing; give reasons for things; keep the question "why?" always in the foreground; have much class discussion; test by the ability to think with the stuff taught and to use it practically
8. Probably the best use of a part of the first night of any class would be to find out the facts listed above in paragraphs 1 to 5, inclusive.

Utilized skill or knowledge is the only kind that really functions with any learner. If he does not apply what he has been taught,

it fails to function at the time. Worse still, any skill or knowledge which is not fixed by use is soon lost and thus fails to function permanently. When this happens with any learner, the time, effort, and money spent on such instruction represent an almost total loss. This is what occurs, to illustrate, when the attempt is made to teach the mathematics of the lathe to a young man who is employed during the day as a clerk in a department store. Even if he could understand the instruction, he has no way to put it to use and thus fix it. But this is but little more absurd than "teaching" the theory or mathematics of A. C. electricity to a group of learners employed in house-wiring or giving lessons in the duties and principles of foremanship to apprentices. With any learner, subject-matter functions through use (utilization). For instance:

1. While he is being taught in the school, the learner is given an adequate participating experience in the performance of the skills, the practice of the manipulative habits, which the course aims to give him. To be adequate, this school training must establish these habits sufficiently for him to carry them out and continue to practise them in his employment. If the school undertakes to train a sheet-metal worker in lay-out work, for example, it should give him the practice in doing this which will fit him to do simple lay-out work in a real shop so that he can by practice there improve both his skill and his speed.
2. In the shop where he works, the learner is given an adequate experience in the practice of the manipulative habits (skills) which he has been taught by the school. This experience, in turn, would be adequate in proportion as:
 - a. The learner practises in the shop the skills he learned in the school, concurrently. This occurs, to illustrate, when the work on the job assigned to a garage repair man gives him a chance to work with the timing of gears while he is learning how to set timing gears in the school. This yields the best results.
 - b. As soon as the learner has gained at the school the necessary elementary ability to do something, he is

given the chance to do it in his shop. For example: After the training in the timing of gears has been finished at the school, this garage man is assigned to this kind of work. This is the next best way.

- c. Before the elementary skill (manipulative habits) which the learner took over as a new wage-earning asset from the school has waned for lack of continued use, he is given the chance to practise it in the shop. Two months after he finishes his work at the school, to illustrate, our garage man is promoted into a job where he must do gear-timing. This is the least effective scheme.
 - d. Knowing that the learner has been trying to improve himself in some particular feature or features of his work by attendance at the school, the foreman supplements the school. Beginning where the course ended, he helps the learner to perfect by practice what he has learned and to progress in his ability to meet higher standards and perform more difficult tasks. This is the way to develop a first-class workman.
3. All the foregoing statements regarding training in manipulative skills apply with equal force to training in mental skill, in the ability to use (think with) information bearing on the problems of the occupation. If a garage man is taught by the school the theory on which the timing gears are arranged, this theory is thinking stuff for use when he sets timing gears. He fixes his ability to use it or loses this ability according to the amount of practice in its application he gets, first in the school and later on the job.

The best time to teach anything is when the learner needs it for a purpose. No less an authority than Dr. E. L. Thorndike says in his book on *Adult Learning*: "The time for learning anything is when you need it. For there are great advantages which accrue when learning satisfies some real need, benefits some cherished purpose and is made use of at once and so is kept alive and healthy for further use."¹

¹ Dr. E. L. Thorndike, *Adult Learning* (The Macmillan Company, New York), p. 183.

Cold-storage knowledge vs. applied knowledge.—All through this chapter, we have really been discussing the difference in the efficiency of cold-storage knowledge with deferred value and of applied knowledge with immediate value. Functioning subject-matter belongs to the latter, and non-functioning subject-matter to the former kind of knowledge. Cold-storage knowledge is knowledge which is not put to use, but has been taught with the hope that sometime it will be used. Theoretically, it has been stored away and has a deferred value for the future. To a high school boy, adult information about the government and laws of ancient Greece is certainly cold-storage knowledge, but so is technical information about alternating current to a chauffeur, or machinist's formulas to a baker, or plane and solid geometry to a printer. All functioning subject-matter, as we use the term, is applied knowledge with immediate value and the more immediate and extensive its use, the greater its value.

Cold-storage skill vs. applied skill.—Because all manipulative habits, just like all other habits, are developed and fixed by practice, they wane when we cease to practise them. It is true that when we try to revive them, they are more quickly regained than they were acquired in the first place, but this in turn depends on how well they were established when we first learned them and how long a time has elapsed since we last practised them. Any person who swims or plays golf knows these statements to be true.

When an evening school attempts in, let us say, 100 hours of instruction to teach an entire novice in the machine-shop business to perform the operations and processes of lathe-work, the value of the training depends on how well he establishes prescribed habits of skill in the school. Obviously the longer he must wait to get employment as a lathe operator, the less the usable value of what he learned.

The situation is somewhat better when a man who has been operating a drill-press in a shop learns to run a lathe in an evening school. Other things being equal, he should learn lathe-work somewhat quicker than the novice. Because of this and because he may be working in a shop where he sees lathe-work done every day, his rate of loss of skill caused by lack of practice on the lathe

may be less. Nevertheless, as long as he fails to secure employment on the lathe, his school-acquired skill remains cold-storage skill.

Giving a machine hand a wider repertoire of wage-earning assets by training him through the evening school in the machine-tools which he does not know how to use and is not using in the shop is a very common service rendered by many evening schools. Experience has proved its value, but its point of weakness as cold-storage instruction should be recognized. There are only two safeguards. One is to help the learner get a job where he can use the new skills, and the other is to insist that he continue to attend the evening school for further practice (training) until he does secure such a job.

Functioning subject-matter vs. cold-storage information.—For the purpose of bringing out the tendencies or usual differences between instruction which deals with these two different kinds of knowledge, the comparative analysis on following pages will serve.

Getting functioning subject-matter for evening industrial classes.—If the foregoing statements be true, then it is vitally important that these classes shall teach usable skill and knowledge to their students. How shall this be secured for any course of study? All experience has taught us these lessons:

1. You must start with the demands of the occupation or line of employment and not with the field of knowledge, or subject, to be taught. You are not seeking opportunities or excuses to teach any particular subject or field of knowledge such as mathematics or science, but to find out what information or what skill workers need.
2. Get your information from experienced men in the occupation or line of employment and not from theorists. Only the former know.
3. Work with these experienced men, and help them to give you what you need. While they know the operations, processes, and demands of jobs, they have usually not been accustomed to analyze the facts they know from the standpoint of the needs of workmen and the corresponding training they require.

CHART XIV

ANALYSIS OF DIFFERENT CHARACTERISTICS OF COLD-STORAGE KNOWLEDGE VS. FUNCTIONING SUBJECT-MATTER

Cold-storage knowledge

1. General in character
2. Abstract in character
3. Taught without reference to its uses for any particular purpose
4. Usually taught with little or no reference to previous experience
5. Tends to rely on memory to retain
6. Usually taught by an academic type of instructor
7. Taught to anybody who meets academic requirements

8. Taught by lecture and formal class drill

9. Theoretically of value to everybody
10. Content determined by the logical nature of the subject

11. Gives a general asset
12. Tested by recall for written examination
13. Claims general educational value
14. Taught always as planned
15. Learners cannot see immediate benefit
16. Usually presented in a general course
17. Usually forgotten before opportunity to use

Functioning subject-matter

1. Specific
2. Concrete
3. Taught for immediate use
4. Builds the new experience on top of the apperceptive basis of previous experience
5. Relies on thinking and use to retain
6. Taught by an experienced tradesman
7. Taught only to a group of learners having the necessary experience, interest, need, and ability to understand and use it
8. Taught by class discussion, demonstration, practice, performance tests, and conference
9. Of real value only to the group taught
10. Content determined by the immediate needs of the group (demands of the trade)
11. Gives a specific wage-earning asset
12. Tested by ability to use
13. Gives specific wage-earning value
14. Adapted to varying levels of ability of learners
15. Learners see immediate benefit
16. Usually presented in unit courses
17. Fixed by application and immediate use

CHART XIV—*Continued*

ANALYSIS OF DIFFERENT CHARACTERISTICS OF COLD-STORAGE KNOWLEDGE VS. FUNCTIONING SUBJECT-MATTER

Cold-storage knowledge

18. Fails to give thinking experience to learner by applying information to his problems
19. Seldom affected by changing condition of industry
20. Usually presents scientific and mathematical principles above the level of the learners' interest, ability, and requirements

Functioning subject-matter

18. Gives learner thinking experience in applying specific information or skill to his job
19. Constantly checked by changing demands of industry and the corresponding needs of workers
20. Presents applied knowledge or skill at the level of the learners' interest, ability, and need for use

4. Organize the teaching content in skill and knowledge which you obtain from these experienced men into unit courses of instruction, each covering a given number of hours of instruction.
5. Arrange these unit courses in the proper sequential order for teaching.
6. Break up each unit course into a series of lessons, each bearing on some main point or feature of the subject covered by the unit.
7. Arrange these lessons in the proper sequential order of teaching.
8. Check this set-up of units and lessons within units with representative men from the occupation or line of employment.
9. See to it that each of the lessons of each unit course taught is broken up into the main teaching points on the subject at which the lesson is directed.
10. See to it that each lesson is outlined so as to cover these teaching points.
11. See to it that all necessary or proper job-sheet, lesson-sheet, and book material is prepared on each of these lessons to cover these teaching points.
12. Try the set-up which has been made by having it taught.
13. Check the work and its results.
14. Modify accordingly.

Methods which do not work. While they undoubtedly have their place, extensive or costly general surveys of a public school system will not give the local director the information he needs, nor will the customary study of the need of vocational education in a community. Undoubtedly the director will get valuable help from the analyses which have been made of some standard lines of employment.² After all, however, the teaching content of local courses must be adapted to local demands, and these can only be

² Federal Board for Vocational Education, Trade and Industry Series: Bulletin No. 52, "Theory and Practice for the Machinist Trade"; Bulletin No. 67, "A Survey and Analysis of the Pottery Industry"; Division No. 12, Series No. 1; University of California, "Analysis of the House Carpenter's Trade."

learned by getting information from those who know them. The experience is usually a needed and valuable education for the director anyhow. Probably the best picture of the problem before him in getting functioning subject-matter is furnished by this very common situation. In a community where evening school begins October 1, the director is asked on September 10 to establish evening school classes for the tailoring business. The only sure way to capture this new patronage is to start classes when the school opens. What shall he do?

One good method.—The writers are very strongly of the opinion that the procedure described above should be followed, even when the director knows in the early summer or late spring that certain classes are to be conducted when his school opens. Out of our fourteen years' experience in the management and supervision of an extensive evening school covering sixty-five occupations and adding new courses every year, we have found that the following method works best:

1. Select a competent man as instructor or principal instructor. He must be an outstanding man in his line; have the confidence and good-will of the trade; know the trade fully as it is practised in the community; know how to use the applied knowledge bearing on its operations and processes; have some ability to analyze his experiences; and have some ability at the start to put over to others what he knows and can do.
2. Work with this man. Show him what you want and how to go about breaking the trade up into occupations; the occupations into operating blocks; operating blocks into operating points; operating points into demands on workers.
3. Show him how to go about analyzing these demands into corresponding needs of workers as to skill and knowledge.
4. Show him how to eliminate from the training problem of the school those skills which can best be taught on the job, or which the school cannot teach or is not equipped to teach.
5. Show him how to eliminate from the training problem of the school the occupational knowledge which can only be gained on the job.

6. Determine with him in this way the functioning content of the trade or line of employment which the school should teach.
7. Break this up with him into unit courses and follow with him the further procedure described in Chapter X, "Courses of Study."
8. Check the results of all this work with a carefully selected group of other experienced persons from the trade or line of employment and modify as advisable.
9. Check the results by teaching the subject-matter as arranged, and modify as experience requires.

Safeguards to insure functioning subject-matter.—Among the policies, the precautions for accomplishing this, are all such as the following:

1. The instructor is master of the skill or knowledge he teaches.
2. The teaching content for any occupation or line of employment has been developed by experienced workmen.
3. The purpose of this teaching content is to help workers already employed to meet the demands of jobs.
4. This teaching content is presented in unit courses.
5. Each of these unit courses has as its declared objective some additional wage-earning asset for those learners it is designed to serve and for no others.
6. The teaching content of every unit deals with skill or knowledge which will help those it is designed to serve to acquire this wage-earning asset, and deals with nothing else.
7. Only those who are able to understand and use what is taught are admitted to the class, the needs of all others being met by other more suitable courses.
8. The teaching content of every unit course is checked by the experience of the instructor in teaching it, the opinion of representative men from the trade or line of employment, and the reaction of the learners themselves.
9. This teaching content is kept fluid and flexible so that it reflects changing industrial conditions or demands and the experience of the school in teaching it.

"Keeping up with Lizzie."—In Chapter II, "The Economic Case for the Evening Industrial School," the swift changes are

described which are constantly going on in every phase of almost every line of employment. It was also pointed out there that corresponding changes in the demands on workers can be met only as a mass problem and by the extension training of employed persons. This training must be in the nature of a touchstone to which workers can return for the precise help they need whenever they require it. Among all possible agencies for such a service, the evening industrial school stands first because of the emergency character of the service which it can be organized to give. How well it meets this great opportunity and grave responsibility depends to a large degree upon getting and using functioning subject-matter from the start. It must not be forgotten, however, that much of the skill or knowledge which is taught will soon become obsolete if the teaching content is not continually revised to keep step with a changing industrial world. However well adapted they may have been in the first instance, an evening industrial school which boasts that its courses of study have not been changed since they were first taught is an inefficient institution. It is suffering from hardening of the arteries.

This discussion of what to teach, as a success factor, leads naturally to the consideration in the next two chapters of the organization of subject-matter into courses of study.

QUESTIONS

1. Should experienced workmen in any line of employment be permitted to attend appropriate evening courses for that line, as auditors, when they are not candidates for a certificate? If so, should this privilege also be granted to auditors from other lines of employment?
2. Check the courses in your evening industrial school or one with which you are familiar against the seven acid tests of functioning subject-matter presented in the early part of this chapter. Get another person to do this also, and compare results
3. Check the methods of instruction used in some given course in your evening industrial school or one with which you are familiar against the proper methods of instruction necessary to make skill or knowledge understandable which are given in the early part of this chapter. If possible, choose some course where the mortality has been high. Get another person to make this check also, and compare results.
4. Study the methods used in the class work of your evening school, or one with which you are familiar, for finding and serving the real needs

of students. Check these methods against the eight safeguards for detecting and remedying the weaknesses of students which are suggested in the early part of this chapter for use in connection with group instruction. Get another person to make this check also, and compare results.

5. If workmen who know how to run a drill-press but do not know how to run a lathe are permitted to take the elementary course in lathe operations, why not permit clerks and truck-drivers to do the same thing? Similarly, why not permit novices to take the course in mathematics for lathe-operators?

CHAPTER X

COURSES OF STUDY

In the preceding chapter, the problem was discussed of securing functioning (usable) subject-matter in skill and knowledge for evening industrial classes. This chapter deals with the organization of that functioning subject-matter (content of training) into courses (units) of instruction.

At the outset, several matters need to be made very clear: In any community the courses of an evening industrial school will be confined to the needs of the workmen of that community. If it has no textile industries, for example, there will be no classes in that line; and if it has no machine-shops, there will be no training for the machine-shop business. No city would be willing to maintain at public expense preparation solely for the industries of other cities, and comparatively few workmen are interested in fitting themselves for uncertain employment elsewhere. Furthermore, as has been pointed out repeatedly, only extension training for actual employment has, generally speaking, been successful in evening schools for wage-earners. It should probably be stated again also that this book is not concerned with university extension work, but only with the type of instruction in evening schools of less than college grade which may be conducted by local communities in cooperation with the State and national governments under the provisions of the National Vocational Education Act.

When we consider a complete trade or line of employment in any community, we should start with the assumption that there is need for help, such as the evening school could give, in every branch of this trade. To put the matter another way, every occupation in the business may make demands in skill or knowledge on the worker which the evening school can help him to meet; hence, before determining what courses of instruction should be organized for any line of work, all the skill and knowledge usable in all the

occupations of that line should be considered. If training for the machine-shop business of a community is to be given, for example, there is need first of all to recognize that it covers all such branches as drill-press, lathe, planer, shaper, milling-machine, grinding, tool-making, die-making, and machine drafting. Furthermore, the branches include all such grades of employment as are represented by helpers, apprentices, journeymen, foremen, superintendents, estimators, and draftsmen.

Determining the teaching content.—Suppose that skill and knowledge (functioning subject-matter) for the machine-shop business in all its branches has been secured as described in the preceding chapter. The next step is to eliminate everything that can only be learned in the commercial shop, or can be best learned there. The teaching content of the evening classes for the machine-shop which remains will thus be confined to the skill and knowledge which only the school can give, or which the school can give better than the industry, or can give in a shorter time. When this teaching content has thus been defined, the next question is how to organize it for purposes of instruction in the evening school.

Two methods of organizing functioning subject-matter for the evening school—old and new.—By the old method, one or more general courses of instruction are offered simultaneously for the full year under some such titles as “Course in Machine-Shop Practice” or “Course in Mathematics for Machinists” or “Course in Mechanical Drawing” or “Course in Industrial Science for Machinists.” If more than one year’s work is provided in any subject, the first course is usually called “Elementary,” and the second “Advanced.”

On the other hand, the new method breaks this skill or knowledge up into unit courses, each dealing with some special help for workers in all branches, or for workers in special branches, of the business. As we shall see later, an entirely new kind of general course is built up by combining these short units for different groups wanting more extensive training. Perhaps the best way to illustrate the difference in these two schemes is by putting in parallel columns some general courses for machinists and one lay-out of unit courses found in a certain school. In the chart on following pages the

CHART XV

SHOWING DIFFERENCES BETWEEN THE OLD GENERAL COURSES AND THE MODERN UNIT COURSES FOR MACHINE-SHOP WORKERS

<i>Old general courses for the machine-shop</i>		<i>Unit courses for the machine-shop</i>	
Elementary Shop Course for Machinists.....	50 lessons 100 hours	Shop courses as follows:	
		M-1 Drill-press.....	5 lessons 10 hours
		M-2 Lathes.....	25 lessons 50 hours
		M-3 Planer.....	10 lessons 20 hours
		M-4 Shaper.....	10 lessons 20 hours
		M-5 Milling-machine.....	20 lessons 40 hours
		M-6 Tool-grinding.....	10 lessons 20 hours
Advanced Shop Course for Machinists.....	50 lessons 100 hours	M-7 Grinding.....	5 lessons 10 hours
		M-8 Elementary toolmaking..	25 lessons
		M-9 Advanced toolmaking..	25 lessons
		M-26 Elementary die-making..	25 lessons
Elementary Mathematics for Machinists.....	50 lessons 100 hours	M-27 Advanced die-making...	25 lessons 100 hours
		Class, laboratory, and drafting-room courses as follows	100 hours
		M-10 Review of arithmetic.....	10 lessons 20 hours
		M-11 Mensuration.....	10 lessons 20 hours
		M-12 Speeds and speed ratios, belts and gears.....	10 lessons 20 hours
		M-13 Mathematics for lathe- operating.....	10 lessons 20 hours
		M-14 Sketching and blue- print reading.....	10 lessons 20 hours
Elementary Mechanical Drawing.....	50 lessons 100 hours	M-15 Transforming formulas and simple algebra.....	10 lessons 20 hours

CHART XV—Continued

SHOWING DIFFERENCES BETWEEN THE OLD GENERAL COURSES AND THE MODERN UNIT COURSES FOR MACHINE-SHOP WORKERS

<i>Old general courses for the machine-shop</i>		<i>Unit courses for the machine-shop</i>	
Elementary Mechanical Drawing.....	50 lessons 100 hours	M-16 Angles and triangles.....	10 lessons 20 hours
		M-17 Milling-machine mathematics.....	10 lessons 20 hours
		M-18 Mathematics of gears.....	10 lessons 20 hours
Advanced Mechanical Drawing.....	50 lessons 100 hours	M-19 Mathematics of milling cutters and blue-print reading.....	10 lessons 20 hours
		M-20 Modern organization and methods of production.....	10 lessons 20 hours
		M-21 Machine-shop materials.....	10 lessons 20 hours
Industrial Science for Machinists.....	50 lessons 100 hours	M-22 Mechanics of the machine-shop.....	10 lessons 20 hours
		M-23 Machine types and attachments, special machinery.....	20 lessons 40 hours
		D-9 Elementary mechanical drafting.....	50 lessons 100 hours
		D-10 Advanced mechanical drafting.....	50 lessons 100 hours
		HT-1 Elementary principles of heat treatment.....	10 lessons 20 hours
Machine-Shop Problems and Methods.....	50 lessons 100 hours	HT-2 Metallurgy.....	10 lessons 20 hours

CHART XV—Continued
SHOWING DIFFERENCES BETWEEN THE OLD GENERAL COURSES AND THE MODERN UNIT COURSES FOR
MACHINE-SHOP WORKERS

<i>Old general courses for the machine-shop</i>		<i>Unit courses for the machine-shop</i>	
Machine-Shop Problems and Methods.....	50 lessons	HT-3 Structure of steel	10 lessons
	100 hours	HT-4 Practical experiments and demonstrations of	20 hours
		HT-1.....	10 lessons
		HT-5 Practical experiments and demonstrations of	20 hours
		HT-2.....	10 lessons
<i>Total</i> 8 courses.....	400 lessons 800 hours	<i>Total</i> 32 courses.....	20 hours 970 hours

NOTE.—In addition, the school offers two short units in Production methods and tooling—one on machines (6 lessons) and one on jigs, fixtures, and tools (10 lessons); also six units of varying length (5 to 20 lessons) on oxyacetylene welding, and one 25-lesson unit on arc welding.

numbers preceding the unit courses are the abbreviations by which each course is designated for all purposes.

General versus assembly courses.—The wide range of these unit courses for any trade, such as has been illustrated for the machine-shop business, the comparatively short time allotted to most of them, and the free choice of workers in selecting what units they will take—all these things have caused the defenders of the general course to look upon the unit-course plan as “scrappy” and confusing, and to fear that the plan will result in superficial rather than thoroughgoing instruction for the trade. As a matter of fact, the training given by the short-unit course is direct, specific, and intensely practical in any subject it covers and in this sense, it is anything else but “superficial.” Rather does the general course of the old type result in superficial education because it teaches so much cold-storage information to students who are not interested in it; see no value in it at the time; have no opportunity to put it to use; and have no previous experience to aid them in understanding it.

A new type of general course.—By combining the necessary unit courses for any trade into an assembled general course or courses, the functioning value of these short units is retained for the workers who want only certain specific help, but want it badly. At the same time, more ambitious workers have the chance to complete a longer course of instruction and to extend as far as they like their mastery of the trade. The evening school offering the unit courses listed in the preceding chart has assembled them into three general courses in machine-shop work as follows: I. General course for apprentice machinists—185 lessons (370 hours); II. General course for journeyman machinists—255 lessons (510 hours); III. General course for machine-shop foremen—350 lessons (700 hours). In its “Bulletin on the Metal Working Trades,” this evening school makes the following announcement regarding these courses:

CHART XVI

ANNOUNCEMENTS REGARDING COURSES OF STUDY OF THE
EVENING SCHOOL ¹*Entrance Requirements*

The instruction is offered in a series of short-unit courses. A short-unit course is a brief series of lessons bearing on the same topic.

These short units are organized into general courses in each line. A general course is a grouping or collection of short units which are necessary to cover the complete subject, each subject being divided into such units.

Any person who is not a candidate for a diploma, but who desires to take a short course or courses meeting his needs may enter any such short-unit course at any time it is offered without any entrance examination, or without any requirements save that he must be employed in machine-shop work, or as a mechanic. The only test for him is his ability to do the work as shown in class. He must, however, be employed in mechanical work and show that he can use the knowledge obtained in the evening school to an advantage.

If he is a candidate for a diploma in any of the general courses of machine-shop practice, he must meet the entrance requirements, and finish successfully the unit courses of this general course in the order presented by the school as explained below.

Courses of Instruction

I. The General Course for the Apprentice Machinists includes the following short courses:

- M-1. Drill-press, 5 lessons.
- M-2. Lathes, 25 lessons.
- M-3. Planer, 10 lessons.
- M-4. Shaper, 10 lessons.
- M-5. Milling-machine, 20 lessons.
- M-6. Tool-grinding, 10 lessons.
- M-7. Grinding, 5 lessons.
- M-10. Review of arithmetic, 10 lessons.
- M-11. Mensuration, 10 lessons.
- M-12. Speeds and speed ratio, belts and gears, 10 lessons.
- M-13. Mathematics for lathe-operating, 10 lessons.
- M-14. Sketching and blue-print reading, 10 lessons.
- D-9. Elementary mechanical drafting, 50 lessons.

To secure a diploma in this general course, a student must take the above-mentioned units, or prove by test that he does not need them, the minimum of attendance and standing being 70 per cent.

¹ Taken from Bulletin No. 105 published by the William Hood Dunwoody Industrial Institute.

II. The General Course for Journeymen Machinists includes the following units:

- M-2. Lathes, 25 lessons.
- M-4. Shaper, 10 lessons.
- M-5. Milling-machine, 20 lessons.
- M-8. Elementary toolmaking, 25 lessons.
- M-9. Advanced toolmaking, 25 lessons.
- M-10. Review of arithmetic, 10 lessons.
- M-11. Mensuration, 10 lessons.
- M-12. Speeds and speed ratio, belts and gears, 10 lessons.
- M-13. Mathematics for lathe-operating, 10 lessons.
- M-14. Sketching and blue-print reading, 10 lessons.
- M-15. Transforming formulas and simple algebra, 10 lessons.
- M-16. Angles and triangles, 10 lessons.
- M-17. Milling machine mathematics, 10 lessons.
- M-18. Mathematics of gears, 10 lessons.
- M-19. Mathematics of milling cutters and blue-print reading, 10 lessons.
- D-9. Elementary mechanical drafting, 50 lessons.

Two classes of men are eligible to work in this general course: First, those who have a diploma from the general course of apprentice machinists; second, men desiring to become foremen who can present evidence of at least three years' successful experience as machine-shop mechanics, or who can prove by test that they do not need work as outlined in the general course for apprentice machinists.

Any of the above units, however, may be taken at any time offered if the student can show that he is capable of grasping the work.

The General Course for Journeyman Machinists is designed for those who wish to advance in the machinist's trade, who are looking forward to the better position and high salary.

III. The General Course for Machine-Shop Foremen and Superintendents includes the following short-unit courses:

- M-8. Elementary toolmaking, 25 lessons.
- M-9. Advanced toolmaking, 25 lessons.
- M-10. Review of arithmetic, 10 lessons.
- M-11. Mensuration, 10 lessons.
- M-12. Speeds and speed ratio, belts and gears, 10 lessons.
- M-13. Mathematics for lathe-operating, 10 lessons.
- M-14. Sketching and blue-print reading, 10 lessons.
- M-15. Transforming formulas and simple algebra, 10 lessons.
- M-16. Angles and triangles, 10 lessons.
- M-17. Milling-machine mathematics, 10 lessons.
- M-18. Mathematics of gears, 10 lessons.
- M-19. Mathematics of milling cutters and blue-print reading, 10 lessons.
- M-20. Modern organization and methods of production, 10 lessons.

- M-21. Machine-shop materials, 10 lessons.
- M-22. Mechanics of the machine-shop, 10 lessons.
- M-23. Machine types and attachments and special machinery, 20 lessons.
- D-9. Elementary mechanical drafting, 50 lessons.
- D-10. Advanced mechanical drafting, 50 lessons.
- HT-1. Elementary principles of heat treatment, 10 lessons.
- HT-2. Metallurgy, 10 lessons.
- HT-3. Structure of steel, 10 lessons.
- HT-4. Practical experiments and demonstrations of HT-1, 10 lessons.
- HT-5. Practical experiments and demonstrations of HT-2, 10 lessons.

This general course is open to men who are desirous of advancing to positions of foremen and superintendents. It is open to any one employed in mechanical lines of work who can show by test that he can profit by the courses as outlined by the school. It is possible for a student to eliminate a number of the unit courses by passing an examination which is held at the school.

Where unit courses are offered as a year's work, they must be taken in the order given.

Certificates and Diplomas

At the close of each course taught by the Institute, a certificate is issued to each student who does, in a satisfactory way, the work of the unit. A diploma is issued to those who desire to complete a more extensive training after they have earned certificates in all the short units which go to make up the required work of the general course.

Credits are based upon an attendance of 70 per cent of the evenings offered in courses, and upon a final ability rating of not less than 70 per cent.

Time Required to Finish Courses

The unit courses, as will be seen by referring to the line of work in which you are interested, usually require from ten to thirty nights. For each of these, as has already been stated, the student would receive a certificate. The general courses, made up as they are of these short-unit courses, require a total of 100 to 250 nights to complete all of them. By attending two nights per week for the twenty-five weeks in which the evening school is in session during the winter season, the student would complete a general course in from two to four years of attendance. By attending four nights a week, the student could take, in many instances, two courses at once and shorten the time required to earn a diploma.

Credits for students who have previously attended.—Those who have attended classes and have received certificates for unit courses have been given credit for those on the appropriate general course. By consulting this pamphlet they can readily see what they must take in addition, to finish a general course and receive a diploma. Those who attended and have not completed units are urged to come again.

Comment. There are certain policies and procedures regarding unit and assembled or general courses practised by the school which it may be well to point out at this place:

1. The whole service of the school has been organized to serve all these groups:
 - a. Those who want special and those who want general help.
 - b. Those who want help to hold a job, those who want a wage increase, and those who seek promotion in position.
 - c. Apprentices, helpers, journeymen, foremen, superintendents, die-makers and toolmakers, and draftsmen.
 - d. Those who want short courses only and those who are candidates for a diploma.
2. The relation of short-unit courses to general courses is precisely the same as that of certificates to diplomas. Certificates give credits for units, and the diploma gives credit for the certificates that show the completion of all the units in a general course.
3. The way is left wide open for any man employed as a mechanic to enroll for any short course or courses which he can use to advantage.
4. The only entrance test for a short-unit course is the ability to do the work in shop or class.
5. When he becomes a candidate for a diploma in any general course, however, the student must meet the entrance requirements for that general course regarding all such things as:
 - a. Successful experience in the trade.
 - b. Ability to do the work of the course.
 - c. The completion of a previous general course as a prerequisite.
6. Any student may at any time secure credit for any required unit or units in any general course by proving through a test that he does not need to take them.
7. Because a workman is constantly engaged in the practical application of what he has learned in previous courses, the way is left open for him to return after the lapse of years to resume the pursuit of a diploma.

The Old vs. the New Service

In the preceding pages of this chapter, we have undertaken to give a picture of the old, general-course organization of subject-matter in the evening school as contrasted with the new unit-course organization. One more question needs to be answered—what about their comparative efficiency as evening school devices? This question should be answered from at least three different angles: (1) their efficiency in insuring the use of functioning subject-matter; (2) their efficiency as devices for mass training, for reaching

and serving as many workmen as possible; and (3) their efficiency as administrative devices.

Features of the old general course.—If the reader will return to Chart XV in this chapter, he will find there a list of old general courses for the machine-shop. Before we undertake to compare these with the unit-course plan, certain other features common to such general courses should be pointed out. These courses begin when the evening school starts and run throughout the year. Usually students must enter on the first or second nights or not at all. If they drop out for any reason, they receive no credit for what they have done. Should they desire to complete the work later, they are usually required to start all over again the next year and thus repeat their previous work. Sometimes they are permitted to start the next year at the point where they withdrew.

These general courses are really designed for a limited number of superior, all-round mechanics who survive here and there in our specialized industrial life and whose way out to larger wage and promotion is the extension of a considerable skill and knowledge which they already possess. Usually the entrance requirements bar the specialized worker. For the exceptional mechanic, a general course of the old type undoubtedly furnished a very valuable training by giving him thoroughgoing instruction in the technical knowledge pertaining to the trade. Usually this instruction is very formal. The deductive method is employed extensively in the application of general principles to machine-shop problems. The lecture is the chief vehicle in "teaching," and students are tested by the customary written examinations. As new discoveries result in new principles, these are added or taught. In shop classes workmen practise, under direction, standard processes on machine-tools, but they are usually required to show proficiency in general machine-shop mathematics or take the general course in that subject before pursuing a shop course.

Obviously such an organization of subject-matter does not meet the need of the typical operator of a machine-tool. This subject-matter was not set up from that angle. It was not gathered by any analysis of the special needs of workers in different occupations

of the machine-shop business. Nor was it ever checked up by the trade from that angle. The typical mechanic of to-day is looking for specific help for his own job or another job just ahead. What the general course offers him is a long course of instruction, all of which machinists, if they live long enough and fill enough different positions, will find beneficial. But he must meet the immediate demands of breadwinning now. Function this general knowledge undoubtedly does to some degree in the work of the machine-shop, but not at the time, at least, for this typical workman; consequently, even if he could secure admission, he does not enter.

One more example, taken from the electrical trade, must serve. Because of the tremendous specialization of work and the large number of special occupations covered by the phrase *electrical work*, a general course in electricity open to all persons employed in any electrical occupation does not progress very far until it ceases to furnish functioning help for any of them, or at least for most of them. As soon as the elementary laws of electricity have been taught, and the elementary mathematics of electricity, all technical knowledge that is of value to the entire group of learners has been presented. Beyond that point, non-functioning subject-matter is taught. Indeed, for experienced electricians even these elementary courses provide instruction which they do not need, and the courses are therefore not for them usable instruction. The only solution for this situation is to break up the subject-matter into unit courses, the bases of which are these elementary courses, each dealing with the specific demands of groups of employed electricians, each group according to its employment and corresponding needs. Only an evening school curriculum organized on a unit-course basis will ever provide functioning subject-matter to all the workmen in any line of employment.

Insuring functioning subject-matter.—In the preceding chapter, usable skill and knowledge were discussed along with ways of securing them in the evening school. In the chart below, the factors which operate to give an evening school this kind of instructional matter are set up and comparisons made as to the extent to which these factors are present in the unit-course organization and the old general-course organization.

CHART XVII

COMPARING NEW AND OLD EVENING SCHOOL SERVICE AS TO INSURING FUNCTIONING SUBJECT-MATTER

<i>Subject-matter is desirable by the learner in proportion as:</i>	<i>New service—unit-course organization</i>	<i>Old service—general-course organization</i>
1. Its content is determined by the demands of the trade	More	Less
2. Its content is kept constantly adapted to the changing demands of the trade and the corresponding changes in the needs of learners	More	Less
3. It is taught by an instructor who is competent in all the skill or knowledge he teaches	More	Less
4. Its immediate benefit is recognized by the learner	More	Less
5. It is of functioning value only to the group for which it is designed	More	Less
6. It is taught for immediate use	More	Less
7. It is fixed by application and immediate use	More	Less
8. It is specific rather than general	More	Less
9. It is concrete rather than abstract	More	Less
10. It gives a new and specific wage-earning asset	More	Less
11. It is presented as skill or knowledge at the level of the learner's interest, need, and opportunity to use	More	Less
12. It is presented at the level of the learner's ability and previous experience	More	Less
13. It is taught in language understandable by the learner	More	Less
14. It is taught by the inductive method	More	Less
15. It relies on thinking and use to be retained	More	Less
16. It gives the learner thinking experience in applying specific information or skill to his job	More	Less

CHART XVII—*Continued*

COMPARING NEW AND OLD EVENING SCHOOL SERVICE AS TO INSURING FUNCTIONING SUBJECT-MATTER

<i>Subject-matter is desirable by the learner in proportion as:</i>	<i>New service—unit- course organization</i>	<i>Old service—general- course organization</i>
17. It is taught by class discussion, demonstration practice, performance tests, and conference	More	Less
18. It builds new experiences on top of old experiences	More	Less
19. It is tested by the ability to use	More	Less
20. It forms trade habits in the learner	More	Less
21. It is elected by the learner rather than prescribed	More	Less

Devices for mass training.—It is assumed here that the public evening industrial school at least is a democratic institution. If so, then it should give the workmen in all employments a truly democratic service, a real equality of opportunity, to gain from the training offered the special help each needs as a wage-earner. Suppose we measure the old general-course and the unit-course organizations from this angle. We have attempted to do this by the following analysis:

CHART XVIII

COMPARING THE UNIT COURSE AND THE OLD GENERAL-COURSE ORGANIZATION
AS TO DEMOCRACY OF SERVICE

<i>Factors in a democratic service</i>	<i>Unit-course organization</i>	<i>Old general-course organization</i>
1. Serves real needs of workmen	Yes	No
2. Serves everybody and not a selected group <i>only</i>	Yes	No
3. Appeals to real interests of learners	Yes	No
4. Gives help at the time it is required	Yes	No
5. Serves all levels of objectives or aims of learners	Yes	No
6. Serves all levels of ability	Yes	No
7. Serves all levels of previous experience	Yes	No
8. Serves all levels of previous schooling	Yes	No
9. Serves all levels of status or position in the trade from helper to superintendents	Yes	No
10. Recognizes all divisions of the trade	Yes	No
11. Recognizes specialization in trades or industries	Yes	No
12. Recognizes that different men in the same occupation need different kinds or grades of help	Yes	No
13. Adapts the service to meet the varying conditions of workmen as to time offered, length of training taken, and the like	Yes	No
14. Gives credit for all work in the school completed	Yes	No
15. Provides training to meet the changing needs of workers	Yes	No

Efficient administrative devices.—Because of the brevity which must be practised here, it will be necessary to summarize with little explanation the conclusions to which the writers have

come as the result of their experience and observation. This we have done by the following analysis and accompanying comment. No attempt has been made to do anything more than express a judgment by the use of "yes" or "no." Further discussion of this question will be found in the chapters on organization, supervision, students, and instructors.

CHART XIX

COMPARING THE ADMINISTRATIVE EFFICIENCY OF THE UNIT COURSE VS. THE OLD GENERAL-COURSE ORGANIZATION OF THE EVENING INDUSTRIAL SCHOOL

<i>Items or factors in efficiency</i>	<i>Unit-course organization</i>	<i>Old general-course organization</i>
1. Responsive to changing conditions	Yes	No
2. Low cost of service to industrial student	Yes	No
3. Economy in the use of money to help workers	Yes	No
4. Responsive to real needs and interests of learners	Yes	No
5. Conserves time, effort, and money of learners	Yes	No
6. Serves the largest possible number of workmen	Yes	No
7. Insures use of instructor experienced in all that he teaches	Yes	No
8. Ease in securing instructor competent in what he teaches	Yes	No
9. Insures efficient selection and grouping of students	Yes	No
10. Ease in grouping students for instruction according to their real need, ability, and previous experience	Yes	No
11. Insures functioning subject-matter	Yes	No
12. Simplifies the problem of dealing with the industrial student	Yes	No
13. Simplifies the use of records, credits, certificates, and diplomas	Yes	No
14. Provides a cafeteria service for everybody—call for what you want	Yes	No
15. Provides a table d'hôte service for everybody—take all you want	Yes	No
16. Simplifies the team-play between the school and the industry	Yes	No
17. Secures average higher attendance of enrolled students on instruction	Yes	No

CHART XIX—*Continued*

COMPARING THE ADMINISTRATIVE EFFICIENCY OF THE UNIT COURSE VS.
THE OLD GENERAL-COURSE ORGANIZATION OF THE EVENING INDUSTRIAL
SCHOOL

<i>Items or factors in efficiency</i>	<i>Unit-course organization</i>	<i>Old general- course organization</i>
18. Secures larger enrolment of students on a given overhead and budget	Yes	No
19. Permits the more effective planning of all matters affecting instruction	Yes	No
20. Permits the more effective supervision of all matters affecting instruction	Yes	No

Space will not permit the discussion here of the reasons lying back of the foregoing comparisons between the old and the new type of evening school service. Taken as a whole, the old type represents the engineering school approach to the problem of training workers. It would not be difficult to show that the early courses in evening school originated there. As a result, they retain the engineer's belief in long and complete general training for any pursuit and in the value of cold-storage knowledge as a source of what he is pleased to call "power" or resourcefulness. The trouble is that such courses serve, and doubtless serve well, a limited and carefully selected group of all-round mechanics, while we are here concerned with the democratic aim of serving every mechanic for whom help can be furnished. Those who advocate the old general course as the only device for the evening school either have no interest in the ordinary workman or hold certain false notions regarding the real conditions to be met which have been repeatedly described in this book. Particularly do they seem to ignore the fact that in modern industry men advance from one job to another very much as a child learns to climb the stairs one step at a time. And in this climbing, the help which the school can give should lift him over the risers and anchor him safely on the treads!

The writers admit that in large centers of population there will always be a limited group of exceptional men who will profit greatly by general courses of the old type when taught by an ex-

pert in a business. What we do undertake to say is that such a course does not meet the real needs of the great bulk of the men employed in that business. Furthermore, we are strongly of the opinion that even the superior group of workmen would profit more by the new type of general course than by the old. And the history of the evening school proves the truth of these statements. While the general course has waned as a device, the unit-course organization of functioning subject-matter has been almost universally adopted for evening classes serving the mass of workmen in any business. It is on the basis of the unit-course organization of subject-matter, therefore, that the further discussions of this book will be based, the next chapter dealing with the problems of getting and scheduling such courses.

QUESTIONS

1. Check up the announcements regarding courses of study in Chart XVI to find whether the announcements made by the school are understandable by the applicant and cover all the general information he should have about courses. It should of course be remembered that in this particular school the circular of announcements also described in considerable detail, which is omitted in the chart, the contents of each course. In addition, there is always an interview of the applicant, old or new student, with a faculty adviser.
2. Twenty years ago, there were very few, if any, short-unit courses offered by the comparatively few evening industrial schools of that day. To-day almost all courses are of the unit type, and the evening industrial school has had an extensive development. How would you account for these changes?
3. Is there any real competition between the unit-course organization of subject-matter and the old general course, or are they simply devices for serving different groups of students?
4. Take any given unit course in your evening school or one with which you are familiar and check it against the twenty-one factors in desirable subject-matter given in Chart XVII. Get another person to do the same thing and check the results.
5. Check your evening school or one with which you are familiar against the fifteen factors in a democratic service given in Chart XVIII.

CHAPTER XI

GETTING AND SCHEDULING UNIT COURSES OF STUDY

In the chapter on "Functioning Subject-Matter," the general procedure for insuring it for evening school classes was described. In the chapter on "Courses of Study," the unit-course organization of this subject-matter was described. It remains here to explain in more detail the method by which this usable instructional material, this teaching content, is obtained and arranged in unit courses.

Getting the Teaching Content

It is assumed at the outset that this task will be performed by some one who has had experience in the trade or line of employment which is to be investigated. At least such a person or persons should furnish the information which is obtained, even though the study may be conducted by another person not familiar with the trade but experienced in an efficient method of conducting this kind of a study.

Must be secured from the trade.—Obviously no director or supervisor of an evening industrial school, however extensive or meager his experience with trades and industries, could secure this information unless he obtained it from the trade itself. However great his ability and skill in this sort of study, it would require a long time for him to get this knowledge at first hand. Such a policy would be socially wasteful, because the facts gathered from a capable man in the business are obtained more quickly; at less expenditure of time, effort, and money; and, in our opinion, much more reliably and efficiently. Certain it is that no evening school could wait for its development on such a slow and costly program. As has already been stated, the best combination for such a study is obtained by selecting in advance a competent workman as instructor and having him work under the supervision of a competent director or other official of the school.

The function of the evening school director.—In *The Instructor, the Man and the Job*,¹ Dr. C. R. Allen established efficient principles and procedures which can be used in the analysis of any trade or line of employment in order to determine the functioning subject-matter of the trade. No pretense is made, within the brief space available here, to cover the ground which Dr. Allen has so thoroughly preëmpted. All evening school directors should study the method of job analysis he presents for finding the teaching content of a trade or of any branch of a trade. It is true that probably no evening school director is ever called upon to make an exhaustive study of any line of employment such as Allen has so thoroughly worked out, but he needs to be master of the process for three reasons: (1) he must be able to break trades or lines of employment into suitable unit courses when occasion requires; (2) he must be able to show the tradesman instructor how to go about securing the functioning subject-matter for the unit course or courses he is to teach; and (3) he must start, check, and help the instructor with his task.

Breaking trades into suitable unit courses.—The workmen in any trade or line of employment do not move *en masse* upon an evening industrial school as soon as it has been established and ask for all the varied unit courses bearing on that trade which may be established in time. Instead, the school offers at the outset a unit course or at the most a few unit courses for the trade. As a "leader," it selects these courses because they seem to be most needed and therefore in demand from the greatest number of workmen in the trade. Obviously, the director is usually not concerned with an exhaustive study of all possible subject-matter for the trade, but with the selection of a few unit courses with which to begin business. For this purpose he should be able to break the trade into its branches and pick out the branch or branches for which he proposes to offer unit courses.

An illustration. The director looks at the machinist's trade and finds that it divides itself into distinct branches because of the difference in the kind of machine-tools and operations performed in each branch. Different groups of workers perform drill-

¹ Published by J. B. Lippincott Company, Philadelphia.

press operations or lathe-operations or milling-machine operations or planer operations or grinder operations. In the evening school shop he can provide a unit-shop course for each of these different machines and kinds of operations, and he can offer also, let us say, a unit course in the mathematics of lathe-operations. This would start him on his way. All that he has done thus far is to recognize that the work of each branch makes different demands in skill or knowledge on workers which can be met efficiently only by setting up separate unit courses in each branch, which, for purposes of training, would be called an instructional block.

In some trades, however, this division into branches is due to differences in the type of construction. Whether a "carpenter," for example, is always a real carpenter or not may be doubtful, but it is clear that carpentry work as a whole covers all such different types of construction as the building of concrete forms, framing, stair-building, outside finish, and inside trim. As each of these types make different demands in skill and knowledge upon carpenters, each constitutes an instructional block within which a special unit course or courses could be organized.

In still other trades, this division into branches and corresponding instructional blocks might be made on the basis of the kind of material used. The plumbing trade, for example, deals with iron or brass pipe, vitrified pipe, and lead pipe. These differ so much in their working properties as to make different demands in skill and knowledge. From this viewpoint these materials might well be considered as branches of the trade and therefore as industrial blocks within each of which a special unit course or courses could be organized.

If a unit-course plan for his evening school is to be used, it seems clear that the director must be able to break the trade into instructional blocks on some clear-cut, logical basis so as to avoid overlap, duplication, and confusion. This constitutes what might be called the ABC or elementary step which he must be able to take intelligently, and he can afford to give to this task all necessary time and study as well as *personal investigation of the leading industries of his community*.

Working with the instructor on unit courses of study.—As has already been stated, the functioning content of any unit course of study can only be obtained from the branch or branches where it functions and only through a competent workman who is master of that branch or branches. Suppose such a workman has been appointed to teach the mathematics of lathe operations. The director tells this instructor that the latter is to get the course of study and then teach it. But this instructor has had no experience with such a task; consequently the director must “show him how.”

First of all, the director points out, let us say, that this course will cover only the figuring which is done on customary and ordinary lathe operations. If a more advanced course is demanded, it will be provided later. He is then asked to list all the different lathe-operations of this kind which require figuring of any kind. Opposite each operation he sets down the kind of figuring it requires. He is then shown how to bunch all those operations which call for the same kind or type of figuring. When he has done this, he has a complete list of all types or kinds of figuring done on all ordinary lathe operations. Next, the two men must decide how many lessons are required to cover properly all these types of figuring. Following this, the different types of figuring must be arranged in the most effective instructional order. It is easy, for example, to convince the tradesman that the simplest kind or type of figuring should be given first and the more difficult kinds later. He also sees the wisdom of presenting each type of figuring at the point where previous lessons have prepared students to understand it and perform its processes.

When all the types of figuring have been arranged in the best order, the next step is to organize them into a series of lessons, each leading naturally to the next. After this, the instructor is shown how to take the figuring covered by lesson No. 1 and plan the steps he is to take in teaching this lesson. From this lesson outline, he proceeds to prepare the teaching material which may be either a lesson sheet worked out by him or a plan for using a textbook to the best advantage or for using other material which has already been prepared. In the same manner, all the other lessons are handled as the course progresses.

Developing a System of Unit Courses

Seldom, if ever, does any evening industrial school start full-fledged. It begins with a small number of unit courses and usually serves only a few trades or lines of employment. If it is successful in its service, the school grows, sometimes slowly and sometimes rapidly, by serving new trades and by increasing the number and variety of courses in old ones. There are certain well-recognized causes and ways in which the school evolves.

Changing industrial conditions lead to new unit courses.—As science and invention are constantly at work, new materials, machines, tools, operations, and processes are constantly being introduced, and old ones profoundly modified. All this makes correspondingly changing requirements in skill and knowledge on workmen and therefore changing demands for courses of instruction. Illustrations of this are furnished by evening school courses which have developed during the last five years in such subjects as welding, heat treatment of steel, aviation mechanics, and presswork on new types of job presses.

Efficient work by the school sells the idea of further training to the workers of other trades and lines of employment. At the start, for example, there is apparently no demand for service from the painting trade. After a while the master painters assist in creating a demand which results in the gradual establishment of an elementary course in painting and an advanced course in painting. Following these courses a very natural request comes from a closely allied trade for an elementary and an advanced course in paper-hanging.

Efficient work by the school sells the idea of further training to workers in other branches of trades already served by courses in some branches. Applied chemistry for bakers is soon followed by courses in scientific baking, experimental baking, sweet goods, and sweet-goods decorations. The next step will probably be candy-making.

Efficient work sells the idea of both more and more advanced courses to former students who have successfully completed courses in their respective lines, and they bring with them other

students for the new work. Undoubtedly a satisfied student is the best customer, the best salesman, and the best advertising medium that any evening school possesses. When the school trains the ambitious workman in any subject, it awakens in him the desire to climb higher in his trade and shows him both the possibilities and the way, through other courses, to realize them. As a result, the lay-out of unit courses in any trade or line is developed more by the continuing demand from former students for additional service than by any other means. If the reader will turn to Chart XX in this chapter, he will find there an array of unit courses for the machine-shop, a large number of which originated through the effort of the school to meet the needs of students continuing from year to year the process of self-improvement.

Scheduling Unit Courses

By long experience, any evening school learns in what order different unit courses for a trade should be scheduled, and on what nights of the week. This is important, because every effort is made or should be made to serve students to the best advantage. Since a course in speed and speed ratio, belts and gears, for example, requires a knowledge of ratio and proportion, the course in the latter subject should be given before the course in the former. As soon as any short unit is completed, the next one, to which the first logically leads, begins. This means that all through the evening school year new units are being started. In order that workmen may know on which night a given unit begins and when it ends, it is necessary for the school to plan and publish a class schedule with the same precision as a railroad company. Only by this means can a workman know with the same certainty with which he goes to a railroad station that at a given hour on a given night a given class in a given subject will start.

All this is illustrated below in the case of one school by excerpts from its "Evening School Class Schedule for the Metal Trades for 1929-30"—a pink folder giving information about the hours at which all unit courses are held in machine-shop subjects, heat treatment of metals, sheet-metal, oxyacetylene welding, and electric arc welding:

CHART XX

EVENING SCHOOL SCHEDULE FOR MACHINIST'S COURSES OF THE
EVENING SCHOOL*Machine-Shop Subjects*

The unit courses offered are given in the following list, together with a statement opposite each of the evenings in the week the unit course is taught.

Courses M-1-2-3-4-5-6 and 7 are given by individual instruction in machine-shop classes which meet for twenty-five nights (four hours each) during the year. Classes are held four hours per evening, one evening per week. Class starts at 6:30 and closes at 10:30 P.M. Classes are scheduled for Monday, Wednesday, and Friday of each week, beginning Monday, October 1, and closing April 19.

M-8. Elementary toolmaking (25 lessons). Monday only, 4 hours per night. Class meets from 6:30 to 10:30, begins Monday, October 1, and ends April 8.

M-9. Advanced toolmaking (25 lessons). Thursday only, 4 hours per night. Class meets from 6:30 to 10:30 P.M.; begins Thursday, October 4, and ends April 4.

M-10. Review of arithmetic (10 lessons), Tuesday and Friday; begins October 2 and ends November 2.

M-11. Mensuration (10 lessons), Tuesday and Friday; begins November 6 and ends December 11.

M-12. Speed and speed ratio, belts and gears (10 lessons), Tuesday and Friday; begins December 14 and ends January 25.

M-13. Mathematics for lathe operation (10 lessons), Tuesday and Friday; begins January 29 and ends March 8.

M-14. Sketching and blue-print reading (10 lessons), Tuesday and Friday; begins March 12 and ends April 16.

M-24. Mathematics and mechanics for machine draftsmen and designers (50 lessons), Tuesday and Friday; begins October 2 and ends April 16.

M-26. Elementary die-making (25 4-hour lessons), Monday only; begins October 1 and ends April 8.

M-27. Advanced die-making (25 4-hour lessons), Thursday only; begins October 4 and ends April 4.

D-9. Elementary mechanical drafting (50 lessons), Tuesday only; begins October 2 and ends April 9.

D-9a. Free-hand drawing (15 3-hour lessons), Wednesday only; begins October 3 and ends January 16.

D-10. Advanced mechanical drafting (50 lessons), Friday only; begins October 5 and ends April 19.

Railroad special (25 nights), Tuesday; begins October 2 and ends April 9.

Railroad special (25 nights), Thursday; begins October 4 and ends April 4.

Heat Treatment

- HT-1. Metallurgy and refinement of iron and steel (10 lessons), Thursday only; begins October 4 and ends November 1.
- HT-2. Elementary physical and chemical principles (10 lessons), Thursday only; begins November 8 and ends December 13.
- HT-3. Structure of steel and elementary principles of treatment (10 lessons), Thursday only; begins December 20 and ends January 24.
- HT-4. Steel treating and testing equipment (10 lessons), Thursday only; begins January 31 and ends February 28.
- HT-5. General elementary heat treatment of carbon steels (10 lessons), Thursday only; begins March 7 and ends April 4.

Comment. Certain policies are illustrated in the arrangement of the time for courses, such as:

1. All shop courses are operated for four hours per night and one night per week. This gives three advantages:
 - a. Students prefer to attend one night for four hours rather than two nights for two hours each.
 - b. Better training can be given because more time is spent on practice and less time on getting ready to practise. The work on the machine is set up once, instead of twice, for four hours of practice.
 - c. A greater use of the equipment of the school is gained. It can be used twenty-four hours in six nights instead of twelve.
2. Classes using the same equipment are scheduled on different evenings. Elementary toolmaking, for example, is given one evening and advanced toolmaking another.
3. Where a series of progressive unit courses needs to be taken in an effective teaching sequence or order, these units are scheduled one after the other in that sequence as is shown above in the case of heat treatment of metals.
4. Since drawing of every kind is taught largely individually, although the students are grouped in the same room, the unit used is a year's work of 50 lessons (100 hours) because each student is in the truest sense a unit himself.
5. For students having difficulty with fundamental processes in figuring, a class is provided for the review of arithmetic (M-10). For obvious reasons this is scheduled at the beginning of the year.
6. In addition to this class in elementary arithmetic for machinists, the school operates throughout the year a special course in arithmetic open to any one at any time. This class is taught on the individual basis to meet personal needs.
7. In order to serve special groups needing help in the special problems of a distinct line of machine-shop work, two shop classes are operated for

the benefit of workers in the repair shops of four railroad systems (railroad special courses).

8. Where unit courses in any shop subject dealing with the operations performed by a particular machine-tool require class training in any subject bearing on these processes, class units are provided to furnish this help. The shop course on lathe-operating (M-1 to 7, inclusive) is supplemented by M-13 on mathematics for lathe-operators and the shop course on milling-machine operations by M-17 on milling-machine mathematics.
9. Where students have had some experience on a given machine-tool, let us say the lathe, and want to extend their knowledge and skill on that tool, their shop night is arranged so that on another night they can take the course on mathematics for the lathe if they desire.
10. Workmen knowing one tool who undertake a new one, let us say the lathe, must acquire a certain proficiency or knowledge of this work in the school shop before undertaking the course in mathematics for the lathe. In the case of specially capable students, this prerequisite is waived.
11. As far as possible, Wednesday night and Saturday night are not scheduled except to meet a large student load in shop work. In this particular school these nights are held in reserve to meet new and unexpected demands which always arise.
12. Obviously also there must be in such a schedule as the foregoing the application and interplay of the long experience of the school by which its officials have learned many things about when to schedule and when not to schedule.
13. Perhaps in closing it should also be stated that any student, otherwise eligible, can enter any short-unit course in this particular school at any time while it is running. Every effort is made to get him at the start and to receive credit for the unit he must meet successfully all the requirements for that unit. If, however, he discovers later that he wants the help this unit provides, he can register as an auditor and take the course. Very frequently he returns to take the full unit the next time it is offered.
14. The reader will also understand that this evening school, having a very large student body, provides extension training for forty lines, organizes its training for all of the lines in unit courses, and schedules these units on the same plan as was illustrated and explained above for the machine-shop.
15. Finally, such an organization of unit courses requires competent tradesmen as instructors and makes the qualifications, selection, and training of such instructors perhaps the most vital problems of the evening industrial school; hence the next four chapters are devoted to these problems.

QUESTIONS

1. Why not have the research department of a school system develop the functioning subject-matter, unit courses, and lesson material for evening school use?
2. What other plan of doing this would you suggest instead of the one proposed in the chapter?
3. Pick out the five leading industries of your community for which you think there is a possibility of evening school training and establish the instructional blocks for each industry.
4. Take any one block and work out the titles of the unit courses to be offered workers in this block.
5. Take any one unit course and, by consulting with an experienced workman, "pull out" the titles of each lesson in this unit course. Give a brief statement also of the content of each lesson.

CHAPTER XII

QUALIFICATIONS OF INSTRUCTORS

There are many factors which enter into the success or failure of the evening school class, but the instructor is the most vital of all. As some one has expressed it, "he makes the class." On the selection of the man to teach any given group of students and the proper training of him for his duties, evening school officials should spend more time than on any other responsibility.

What is the job of this instructor? It is to take workmen having a common need for what he teaches, and "put into their heads or hands that which they did not know or could not do before and to do this with the least amount of effort on the part of both the learner and the instructor." He has therefore four duties or responsibilities, and he is efficient in proportion as he discharges all four of them successfully: (1) to teach them the skill or knowledge they require as workmen; (2) to give them this skill or knowledge effectively so that they can use it for themselves; (3) to do this at the least expenditure of time and effort on the part of the learner; and (4) to do this also at the least expenditure of his own time and effort.

Qualifications

What should be his qualifications to meet the demands of his job? Among the most important are the following:

1. **Mastery of the skill and knowledge which he teaches**—mastery of the trade, the branch, the occupation, the job, the specialty, the processes, the operations—whatever it may be that he undertakes to teach. This requirement is fundamental to all others, because:
 - a. He cannot determine the functioning skill or knowledge which he does not know.
 - b. He cannot put over to others the usable skill or knowledge which he is unable to apply to their problems.

- c. He cannot conserve the time of workmen in learning to use skill or knowledge in a practical way unless he is first master of their use himself.
- d. He cannot conserve his own time and effort in getting, organizing, and putting over skill or knowledge which he does not know, does not understand, or cannot use.

2. **An interest in workmen as students and a sympathetic understanding** both of their learning difficulties on the job and of their learning difficulties at the school. A good foreman brings this interest and this understanding to bear when he breaks in workers on new jobs; helps them overcome special troubles; and improves their understanding and their workmanship. For the time, the evening school instructor takes over this instructional responsibility in place of the foreman. He teaches workers skill and knowledge which under the given conditions they cannot get in the shop. Naturally he succeeds in proportion as he handles his gang of workmen (students) as a good foreman does.

3. **Good health and vigor.**—This goes almost without saying in any case where an efficient person is to be selected for any job, but there is a special reason here. Your evening school instructor works at his trade all day. He must have the physical vigor or reserve necessary to stand the additional strain of teaching from two to four hours on each of from one to four nights per week and of making preparation at home on still other nights for his school duties. Otherwise his work suffers from all such things as tardiness, absence, use of less efficient substitutes as teachers, interrupted training, disrupted class, lack of proper preparation of lessons and lesson material, lack of poise and tact, grouchiness, and the like. All these shortcomings take their toll not only in bad service but in additional expense to the school in many ways, including the cost of added supervision.

4. **The ability to analyze his trade or occupation for instructional purposes.**—By this we mean all such abilities (habits) as the following:

- a. The ability, when he has been shown how, to analyze the process of his trade or occupation so as to determine all such things as the demands on workers; what needs for skill or

knowledge are met by the shop; what needs are not met by the shop; and therefore what needs should be met by the evening school.

- b. The ability, when he has been shown how, to translate these needs into the usable subject-matter which he must teach in order to meet these needs.
- c. The ability, when he has been shown how, to arrange this subject-matter in the most effective order of presentation or teaching sequence.
- d. The ability, when he has been shown how, to break this subject-matter, when so arranged, into lessons each having as its objective some specific ability or asset in skill or knowledge which the students of his group require.
- e. The ability, when he has been shown how, to prepare the teaching content in skill or knowledge for each lesson.
- f. The ability, when he has been shown how, to arrange (outline) the teaching content of each lesson in the most effective order of presentation or teaching sequence.
- g. The ability, when he has been shown how, to prepare effective job sheets and shop knowledge sheets for these lessons.
- h. The ability to use effectively the four fundamental steps (preparation, presentation, application, and test) in teaching, or some other standard method, in his teaching and in the preparation of instructional material.

5. **At least a fair personality**—one which does not interfere with the proper performance of his job. By this we mean all such things as these:

- a. His personal appearance should not be such as to be offensive or so unpleasant as to set up either among his students, his fellow-teachers, or the officials of the school an attitude toward him which handicaps him in getting his job done.
- b. His habits and manners should meet at least this same requirement.
- c. Beyond these two matters, the personality of an instructor of workmen that counts can be summed up in such statements as these: they like him personally; they enjoy dealing with him; and they care for his good opinion.

- d. Beyond these two matters, however, personality is of negligible importance as compared with the proficiency of the instructor in his duties. It must not be forgotten that evening school students "mean business" when they take a course, and that their dealings with an instructor are limited as to scope, number, and times. One instructor is master of what he teaches and of the way to teach it, but does not have an attractive personality. Another is most likeable in every way, but is weak as a workman or as a teacher or in both these respects. Any evening school student wants the former and not the latter.

6. Executive ability in planning and carrying out plans.—The instructor should handle his class as a business proposition. This means that he is put on a teaching job where he must manage all the affairs of that particular job in such a way as to put over the total job in a workmanlike manner.

To do this he must plan and execute his plans efficiently for all such duties as (1) the requisitioning of materials or equipment; (2) the efficient use of materials and equipment; (3) the preparation of job sheets and lesson sheets and lesson plans; (4) the carrying-out of lessons as planned; (5) the keeping of records and the making of reports; (6) the testing of the progress of students by the use of performance tests or examinations; (7) the elimination of waste in light, heat, power, supplies, lost motion of learners, and the like; (8) the management of the class and of individual cases of students; and (9) the constant adaptation of all features of his work to changing conditions and his own growing experience.

Such executive capacity is a sort of ensemble of all such qualities as initiative, resourcefulness, adaptability, the habit of preparing for things in advance, the tendency to system and order, high standards of efficiency in the performance of jobs, and the command of effective methods of leading and directing people.

7. At least the minimum of general education required to put over to others what the instructor teaches. Admittedly the more education possessed by an instructor who is also master of the skill or knowledge he teaches, the better. Unfortunately, in practice it is seldom that you find an engineering school graduate,

to illustrate, who can be utilized as a teacher of trade subjects in the evening school. His general education and his general technical education are of course desirable but, barring exceptional cases, he does not have the required skill and knowledge in trade processes and problems which can only be acquired by real experience on the real job as a workman.

When he does have this asset along with a sympathetic understanding of student workmen and can talk to them in language they understand, he is probably the best type of evening school instructor. Because this type of instructor is so rare it becomes necessary, in most cases, to select from the experienced men of the trade itself those who know the specific skill or knowledge to be taught and can teach it.

Such a tradesman must be an educated man in the sense that the trade would use this term—not necessarily a well-educated man from the academic standpoint. Some of the best evening school instructors in a certain school never had more than a sixth-grade schooling, although most of them completed at least a common-school education, and some of them are graduates of engineering schools as well as competent tradesmen. One thing, however, all these men have in common—they are all well educated as tradesmen.

In various ways they have supplemented successful experience in the trade or occupation with the reading of trade publications, home study, evening school instruction, and the like. In the language of workmen, "they know their onions" so far as the work they teach goes. Whatever figuring the trade or occupation requires they can do well and can teach others to do well, and so likewise with the use of blue-prints, free-hand sketching, and simple drawing to scale and with the application of functioning information from every field of knowledge which is usable in the trade or occupation. In short, they are masters of the skill and knowledge they are to "put over" to student workmen and they have the teaching ability to "put it over." Consequently they are able to give students both the how and the why of the things they teach.

Up springs your academically minded educator and says, "But

such men are not competent because they have not had sufficient regular schooling. As a result, to illustrate, they do not use the kind of English they should in their teaching." Our answer is that they are not hired to teach English but to teach a unit course or courses in the use of skill and knowledge in a given occupation, trade, or line of employment. Any one recognizes, who knows the real facts, that the English habits of the evening school student are already fixed. They will certainly not be changed by mere exposure to classical diction or damaged by listening to the language of an instructor whose speech is at least as good as that of any member of the class and usually better than that employed by most of them. What his students want from him is help to meet their job problems and not training in English.

He has something they want to learn. They want him to give it to them, of course, in simple language they can understand, but it is what he does and says, and not the perfection of the way in which he says it, that counts with them. Furthermore, they have been accustomed to instruction from a foreman in the shop; every day they go through contacts as learners and directed workmen with this foreman. His language is at least no more perfect than that of the evening school instructor. Indeed, the latter is usually employed as an instructor because he has been successful as a foreman. To set up academic requirements regarding his use of language in teaching the same men who are exposed for eight hours every day to the language of the shop is to substitute academic notions for trade standards and often to deny real service to student workmen by giving them a stone when they ask for bread.

We must not be misunderstood at this point. Do we believe it desirable that the evening school instructor should use good English? Yes, always, if you mean simple, correct language and not big words, long sentences, and technical terminology which prevent him from being understood by his students. Do we believe that such an instructor should be able to write legibly what he writes and figure accurately what he figures, and the like? Absolutely. Do we believe that as an outstanding man in the trade, best qualified otherwise to teach his subject, he should be barred

because he violates best usages in speech? No. What should be the standard in selecting him? Mastery of what he teaches; ability to speak so he can be heard and understood; ability to use language which is clear to student workmen—in short, *the ability to employ language as an efficient vehicle in teaching fellow-workmen as learners what they want to learn.*

Furthermore, we believe that, while engaged in teaching, he should not be harassed by a supervisor in a vain attempt to reform his speech overnight. Finally we believe that any instructor who is retained from year to year should be encouraged and stimulated by the supervisor to attack and remove any shortcomings in the *use of language as a vehicle of instruction* which interfere with his efficiency as a teacher of *what he teaches.*

8. **The ability to teach**—to “put over” to others what he knows or can do. By virtue of native abilities and qualities and the experience he has had, a tradesman has, or has not, acquired what he calls the “knack” of teaching other people. This “knack,” or the lack of it, shows itself when he “breaks in” new employees on jobs; helps old workers learn new jobs; or gives them additional skill and helpful trade information. If he has this knack, he can by proper training be made into a very good instructor. If he does not have it, he cannot be made over into such an instructor by any scheme of teacher-training in a school or, for that matter, by any supervision of his work in the school, class, or shop; hence the importance of determining in advance, as far as possible, whether he will ever make a good teacher.

By *good teacher* we do not mean a glib or entertaining talker or an authoritative lecturer on technical subjects or a drill-master on memorized information or a systematic peddler of trade information. What we mean is a teacher who uses efficient devices to get learners to do what they could not do before; understand what they did not understand before; know what they did not know before; use in their jobs skill and knowledge they could not use before; and think with ideas and facts about the problems of their occupations as they did not think before.

A good teacher in an evening school is an instructor who helps workmen learn what they want to learn in the way that most

workmen learn; and that is by doing, by seeing, by building new skill on top of old skill, and new knowledge on top of old knowledge, and by thinking with new stuff in the way a tradesman thinks on his job. This is the way a first-class foreman discharges his responsibility as an instructor of his workmen, and it is the only way an evening school instructor can discharge the same responsibilities to the group he teaches.

No foreman in a shop ever "gets anywhere" by lecturing, by drill on the memorizing of facts, by formal written examinations, by the peddling of a mass of general and therefore useless information, or by dumping on a man a task that he cannot perform and then leaving him to work out his own salvation unaided. He gets results with his men through the use of visualization; through demonstration; through participating experience by learners; through performance by learners; through furnishing helpful information when it is needed; through fixing of new skill or knowledge by use; through step-by-step progress of learners in the mastery of new skills and in the use of new facts and ideas; and through checking the results of his teaching by the ability of learners to apply what they have been taught. It is his ability to do this in the shop which constitutes the largest asset of an instructor to any evening school dealing with ordinary workmen.

About all any scheme of teacher-training or of teacher supervision can do for such an instructor is to help him get himself adapted to the evening school conditions under which he must use the successful methods of instruction he has already learned to use in the shop and to help him improve his efficiency in the use of these methods under evening school conditions. Admittedly not all evening school instructors possess these teaching assets in equal degree, but the assets indicate the kind of man we should be continually seeking and helping to make the most out of his "gifts" for the benefit of fellow-workmen and of the trade.

9. Good standing as a workman and as a citizen.—In his shop and among the men of his trade or line of employment who know him, the instructor should have a good reputation as a capable and reliable workman. It may not be such an outstanding reputation that it induces men, not otherwise attracted, to enroll for the

course he teaches, although this is precisely what happens in exceptional cases. But his trade standing should at least be such as will cause men who want what he teaches to enter his class with confidence that they will get what they need—a trade standing that will not prevent men, otherwise interested in his course, from attending and profiting by his teaching.

It almost goes without saying that, if a workman has among the members of his trade or line of employment a good reputation as a reliable workman, this indicates in most cases his reliability as a citizen in all such things as honesty, obedience to law, and truthfulness. Here again the acid test is whether his reputation as a man and citizen is such that it will not interfere with attendance or with his relations with students as a teacher. Evening school students are not angels but intensely human. They do not expect or desire an angel as a teacher but a very human he-man with such manly qualities as punch, courage, industry, frankness, square dealing, sympathetic understanding of student workmen, honesty, and truthfulness.

It is one thing to determine the qualifications an instructor in a trade subject should have, but it is quite another thing to determine whether he has these qualifications, as we shall see in the next chapter on the selection of instructors.

QUESTIONS

1. Discuss this policy: In a certain State, a determined effort is being made to restrict the employment of all new instructors in the evening industrial schools to those persons who have had at least 200 hours of preliminary teacher-training before entering the service.
2. Discuss this policy: In another State, only experienced tradesmen are employed as shop instructors. As a result the qualifications as to trade skill and knowledge are high, but they are low as to previous schooling. On the other hand, class instructors in what are called related subjects must be high school graduates or the equivalent, and have at least two years of technical schooling beyond the high school. They are not required to be competent tradesmen, but only to have enough *contact with occupations to understand* the application of the subject each teaches.
3. In a certain community, evening school instructors are hereafter to be rated and paid on the basis of the amount of formal academic and pedagogical training they have received. "This avoids trouble about ratings

on actual performance and forces every instructor to get a better education." Discuss this policy.

4. Arrange in a descending order of their importance, as you see it, the nine qualifications of an evening school instructor discussed in this chapter ranging from mastery of skill and knowledge to good standing as a workman and citizen. Weigh them as to relative importance on a scale of 100.
5. What's wrong with this? An evening school instructor in scientific baking says to his class, "I never did any baking, but I have had four years of college chemistry and am therefore prepared to teach you how to apply chemistry to your bake-shop problems."

CHAPTER XIII

SELECTING INSTRUCTORS

How shall the director of the evening industrial school discharge his responsibility for selecting the best man in his community to teach a given course or courses? The answer to this question is given here under these heads: Discriminating between qualifications; methods of determining qualifications; and devices for determining qualifications. As the pay and the State certification of instructors are matters involved in their selection, these subjects are also included.

How to Select Instructors

Discriminating between qualifications.—This matter has already been treated in the next preceding chapter. All the assets there described should be possessed by the applicant to a reasonable or minimum degree, and the more of each he possesses, the greater his fitness for the position. Beyond this reasonable or safe minimum, however, the evening school director finds himself much more interested in some qualifications than others because he regards them as more vital in the efficient performance of the job than others. As a result, he stresses or weighs some qualifications more than others and gives more attention to the task of finding out, thoroughly and accurately, the extent to which the applicant possesses this, that, or the other more important asset. When he finally decides between applicants, he usually does it on the basis of their showing as to these more vital features in the make-up of the men. All this is illustrated in the following chart:

CHART XXI

COMPARING THE IMPORTANCE OF
DIFFERENT QUALIFICATIONS OF EVENING SCHOOL INSTRUCTORS

<i>Qualifications or assets of applicants</i>	<i>Rank in importance</i>	<i>Weight on scale of 100</i>	<i>Comparative weight numerically</i>
I. <i>Doing assets</i>:			
1. Mastery of the skill and knowledge he is to teach.....	1	30	6
2. The ability to put over (teach) skill and knowledge to others..	2	30	6
3. Executive ability in planning and in handling people.....	3	20	4
4. The ability to analyze his trade for instructional purposes.....	4	15	3
5. Interest in and a sympathetic understanding of student workmen.....	5	5	1
II. <i>Personal assets</i>:			
6. Good health and vigor.....	6		
7. At least a fair personality.....	7		
8. The necessary minimum of general education.....	8		
9. Good standing as a workman and as a citizen.....	9		

Comment. In the above chart, the nine qualifications discussed in this chapter for evening school instructors are stated in the descending order of their importance as they appear to us. The first five in the list are grouped together and called *doing assets* because they are more directly involved in the doing of the teaching job, while the last four of the qualifications are grouped together as *personal assets* because they have to do with what the applicant is, or is reputed to be, rather than with his ability to do. All personal assets have been rated lower in importance than all doing assets. This has not been done because we fail to recognize that a certain minimum of such personal assets as health, personality, literacy, and trade and community standing are indispensable to an evening school instructor. Beyond that point, however, we believe that the largest gains in efficiency are made by selecting instructors primarily because they are strong in doing assets. No attempt was made to rate the relative importance of different personal assets. After a necessary minimum has been reached by an instructor in his interest and sympathetic understanding of student workmen, we regard mastery of the skill and knowledge to be taught as at least six times more important and so is the ability to teach, while executive ability is four times and ability to analyze his trade or occupation is at least three times as valuable.

What we have tried to say in the above chart are all such things as these:

1. Of course instructors should have the necessary personal assets (health, personality, general education, and standing as citizens), the absence of which would interfere with their work in the school and should, therefore, not be employed if they do not have the indispensable minimum of these assets.
2. Of course the possession of any of these personal assets in excess or advance of this minimum is desirable in the case of any applicant.
3. But he should not be chosen for a position merely because of his surplusage of such personal assets—because, to illustrate, he is unusually strong physically or strong in academic education or strong in personality or in his community reputation as a “fine man.”
4. When applicants satisfy reasonable standards as to personal assets, then the choice should be made on the basis of their special strength in the doing assets (mastery of skill and knowledge, ability to teach, executive ability, etc.).
5. Of course, should two applicants appear to be equally strong in these abilities (doing assets), then a return should be made to their more personal assets in order to decide between them.
6. Any applicant who ranked high on assets or qualifications Nos. 1, 2, and 3, and satisfied all other minimum requirements, should be selected in preference to one who ranked low in these respects and high on the remaining six items or assets.
7. Any applicant who ranked high on mastery of skill and knowledge and teaching ability (assets 1 and 2), but merely satisfied ordinary requirements as to the remaining assets (Nos. 3 to 9, inclusive), should be selected in preference to one who ranked high on all other assets but was weak as a tradesman and in his ability to “put over” what he knows.
8. No one should be employed as an evening instructor who fails to meet reasonably high requirements as to his trade or occupational ability and his teaching ability.

Methods of determining qualifications of instructors of a specific course or courses.—How shall the evening school director determine whether applicants have the required qualifications? This can be best answered by suggesting some of the significant information which bears on different qualifications:

1. *Mastery of the skill and knowledge* which the applicant is to teach is indicated by the answers to all such questions as the following:
 - a. How many years of experience has he had in the trade or occupation with which the course deals?
 - b. What has been the nature of this experience?

- c. How many companies has he served?
 - d. What are the various positions in the business he has held?
 - e. What are the names and addresses of these companies and what is the nature of their business?
 - f. Whom does he give as references or vouchers for his competency and what are their addresses?
 - g. What rate of pay has he received for the past five years as compared with the usual rate paid workers in the same jobs?
 - h. Has he specialized in any one branch or job?
 - i. Has he attended any evening or correspondence courses of instruction in his line of work?
 - j. Does he read trade journals?
 - k. Does he read textbooks pertaining to his trade?
2. *Ability to "put over" (teach) skill and knowledge to others* is indicated by the answers to all such questions as:
- a. Has he ever had any previous teaching experience in a school?
 - b. Has he ever taught any one any job or operation as a workman or foreman in the shop, and if so, what?
 - c. Has he ever had any course in foreman training?
 - d. Does he think the workers in his occupation need further training?
 - e. What are the things he says they should be taught?
 - f. How would he go about teaching them these things?
 - g. In giving these answers, does he give evidence of ability to analyze the occupational demands and needs of workmen?
 - h. Does he give his answers regarding training in any logical order?
 - i. Does he give a clear and precise answer to questions or "just wander"?
 - j. Does he display an alert and resourceful mind?
 - k. Does he display any particular interest in workers?
 - l. Does he indicate a sympathetic understanding of workers?

- m. Does he appear interested in his occupation and line of employment?
 - n. Does he appear interested in the prospect of teaching?
 - o. Does he appear interested only in the financial side of teaching?
 - p. Does he give evidence that he understands how workers learn?
 - q. What do his employers, as references, say about his ability as an instructor?
3. *Executive ability in planning and carrying out his plans* is indicated by the answers to the following questions:
- a. If he has served as a foreman or superintendent, what have been his duties and responsibilities?
 - b. What do his employers, past or present, say about his ability to plan and manage, including the handling of people?
 - c. On being asked how he would deal with a specific situation in his plant, as described by the interviewer, what is his answer?
 - d. Does this answer indicate a logical plan for dealing with the situation?
4. *Ability to analyze his trade or occupation for industrial purposes* is indicated by the answers to the following questions:
- a. Does he recognize the various branches of the trade or occupation?
 - b. Does he furnish the main or more important jobs or operations in each branch of the trade or occupation? (Usually indicated also by a skeleton outline furnished by him later.)
 - c. Does he give the logical steps in performing a given job? (Usually given also in writing later.)
 - d. Does he give the skill and knowledge required by workers in order to perform these steps? (Usually furnished later in writing.)
 - e. Does he furnish a logical plan for teaching this skill or knowledge to workers in his occupation? (Usually furnished later in writing.)

5. *Interest in and sympathetic understanding of student workmen* is indicated by the answers to all such questions as the following:

- a. How did he learn his trade?
- b. What does he think about men learning after working hours?
- c. Does he think that men ever get too old to learn?
- d. Does he think that young workers are capable of learning?
- e. Has he ever been a student himself after working hours?
- f. Has he had workmen come to him for help?
- g. As a foreman, does he handle his men by "bawling them out"?
- h. As a foreman, does he correct mistakes of workmen by seeking real causes of the trouble and helping them to avoid these mistakes in the future?
- i. Does he recognize the difficulties under which workmen attend evening school?
- j. Does he recognize the wide differences in learning ability of workers?
- k. Does he recognize the wide differences of workers in other respects, such as health, domestic conditions, temperament, and the like?
- l. Does he recognize that different workmen must be handled in different ways?

6. *Good health and vigor* is indicated by the answers to all such questions as the following:

- a. Does his age fall between the prescribed age-limits, as for example between twenty-five and forty-five years?
- b. Has he any physical handicaps?
- c. Is his size against him?
- d. How much time has he lost due to sickness during the past two years?
- e. Is he subject to any ailments which affect him, either mentally or physically, at times?
- f. Does his present employment sap his daily vitality so

as to interfere with preparation and teaching of his skill and knowledge?

- g. Will his duties and hours of employment prevent him from giving the necessary time to his teaching job?
7. *At least a fair personality* would be indicated by the answers to such questions as these:
- a. Is his general appearance pleasing?
 - b. Is he clean?
 - c. Is his dress suitable?
 - d. Would his voice interfere with his work as a teacher?
 - e. Does he talk so that he can be clearly understood?
 - f. Has he poise and reasonable assurance?
 - g. Is he tactful in conversation?
 - h. Has he a sense of humor?
 - i. Has he a sense of fairness?
 - j. Is he resourceful in carrying on a conversation and making his point?
 - k. Is he inclined to overrate himself?
 - l. Is he truthful and honest in his statements?
8. *Necessary minimum of general education.* This matter has already been discussed at some length in this chapter. The questions proposed below have been set up with the intent of learning first whether the applicant possesses the minimum necessary education (literacy) required to teach what he is to be paid for teaching; and then of measuring what additional and desirable assets in general education he has acquired above this minimum:
- a. Where did he go to school?
 - b. What general schooling has he had?
 - c. What technical education did he secure in regular and professional schools, if any?
 - d. Can he write legibly?
 - e. Can he do the figuring required in the trade or occupation he follows?
 - f. Does he enunciate so that you understand him clearly?
 - g. Does he make reasonably good use of English?

- h. Has he any foreign accent that interferes with his teaching?
 - i. Has he been a student of the subjects bearing on his trade or line of employment?
 - j. What additional education beyond the regular schools has he acquired from part-time schools, evening schools, or home study (correspondence)?
 - k. What education has he acquired on the job (ability to get facts and think with facts to meet situations)?
 - l. As a whole, all his schooling and experience of every kind is equivalent to how many years of schooling?
9. *Good standing as a workman and as a citizen* is indicated by the answers to all such questions as these:
- a. Has he risen to a position as foreman or superintendent?
 - b. What is the opinion of him as a workman or as a man held by his employers and other trade references?
 - c. If he belongs to a union, has he ever served as an officer or chairman of an important committee?
 - d. Does he belong to any fraternal order or orders?
 - e. Has he ever held any office in this order or orders?
 - f. If he belongs to a church, has he ever served as an officer in connection with it?
 - g. Has he ever held any public office or represented his neighborhood in any position of trust?
 - h. Has he ever been charged with any crime or misdemeanor?
 - i. Has he any personal habits which might interfere with his service as a teacher?

Devices for Testing Qualifications

Qualifications may be tested by all such means as the following:

1. Personal interview with the applicant at the office of the director or any other meeting place. This is the means by which the director obtains the answers to most of the questions listed above under methods of determining qualifications.

2. Practical test of the ability of the applicant to put down on paper all such things as: the analysis of his trade into branches, branches into occupations, occupations into operations, operations into demands for skill and knowledge, skill and knowledge into teachable content, teachable content into lessons, and lessons into a course of study.
3. Application form, which varies greatly between schools, and which is used to obtain from the applicant preliminary information by which the director may decide whether he regards the applicant as a possibility, justifying an interview; used also for purposes of file records.
4. Telephone and letter as a means of checking up on statements made by the applicant and for uncovering a source of supply of competent prospects for a teaching job. This is usually done by calling up an employer or superintendent or the secretary of a local union or association of employers.
5. Substitute teaching. This means is used when possible to try out an applicant by having him take over a class in place of the regular instructor. This can be done by determining in advance that this substitute is to be called upon when the regular instructor is absent.
6. Practice teaching. Still another way to test the teaching ability and trade mastery of the applicant is to assign to him the outline of a specific lesson in advance, have him get ready, and on a specific evening have him teach this lesson for the regular instructor.

Pay of Instructors

This varies, of course, in different localities and as between different communities of the same State. Roughly, it ranges from \$1.50 to \$2.50 per hour. Some schools pay a flat rate which remains the same from year to year. Others operate a sort of teacher-apprenticeship over a period of from four to five years. When he starts, the instructor is paid from \$1.50 to \$1.75. By a step rate performance he advances at the rate of twenty-five cents an hour until he reaches a maximum of from \$2.25 to \$2.50 per hour. The school with which the writers are most familiar starts a teacher at

\$1.75 per hour and pays a maximum of \$2.50 per hour. At the same time, it does not hesitate to pay a higher rate for an exceptional man for an important teaching job where this is necessary. Usually employment is from year to year only, no appointments being made for a greater length of time.

In some schools, where a day preparatory trade-school is also operated, many of the instructors teach in the day-school also and their evening school revenue is regarded by them as an addition to their day-school salary. Usually such instructors are not permitted to teach more than four hours per week in the evening school. Where the instructor works in a trade, his evening school wage constitutes an addition to his annual income. One very shrewd arrangement, advantageous both to the man and the school, is that of a full-time special man who serves in the day-school beginning at 1 P.M. and then transfers to the evening school, where he teaches until 10:30 P.M. He gets full employment at a satisfactory wage while the school buys double the time at but little more than half the evening school rate.

Of course, evening school instructors teach a varying number of hours, ranging from ten hours for one short-unit course to 100 hours for one year's work in a series of units and to 200 hours for a double year's work. Consequently the income varies from, let us say, about twenty-five dollars to five hundred dollars per year. With some instructors this additional income is an important part of their year's savings; with others it constitutes but little incentive as compared with their trade pride and their desire to put over a good job of helping other workmen.

Certification

When the director of a public evening industrial school is considering applicants for a teaching job, he must see to it that the instructor he chooses is also approved by the State Board of Vocational Education. Otherwise the school will not be reimbursed for any part of the wages paid to such an instructor. In some way the board formally declares that this instructor meets its requirements and is therefore legally qualified to serve as a teacher of a given subject or subjects in an approved school. This procedure

is called certification. Obviously, the safe path for any director is, whenever possible, to secure this certification in advance, particularly when he is in doubt on any point. (See also the discussion of the qualifications of teachers in Chapter XXI, "The Federal Government Takes a Hand.")

Separate certification for evening schools.—In all the States there is a recognition of the fact that different qualifications must be set up for the evening school instructor than for the day-school instructor, and consequently there are separate standards for each group. We are here concerned only with the minimum standards for the evening school instructor. This idea of minimum requirement in any qualification, as contrasted with the higher standard which a director may use, is secured by employing some such phrase as "at least." The applicant must have, to illustrate, "at least"—years of successful experience as a journeyman in the subject he is to teach."

Variations in State standards.—Generally speaking, these minimum requirements for evening school instructors are very much the same in all the States. At the same time, however, there are variations in these standards and in the procedures of different State boards which make it necessary that the evening school director shall be thoroughly familiar with the regulations of his own State and conform to them.

Typical State requirements may be presented best by an analysis of the practices of the States. In general, all require certain minimums with regard to all such matters as previous trade experience, trade ability, teaching ability, good health, good standing as a workman and as a citizen, some kind of training for the duties of an instructor, and general education. Usually all these requirements, as will be shown below, are stated in very general terms, leaving to the officials of the State board the responsibility for interpreting their meaning and thus giving these officials considerable leeway and flexibility in passing upon any given applicant for certification. To us this is the largest virtue in the plan of any State for handling the problem. In the analysis of present State standards and their trend below, we have separated those for "shop teachers" from those for "teachers of class-room subjects."

Shop Teachers

1. *Previous trade experience.* Gradually the States have shifted from the broad phrase, "adequate trade experience" to such statements as "at least three years of experience beyond the apprenticeship stage." In some States, the latter phrase would be interpreted as meaning "at least seven years' previous experience in the kind of skill or knowledge taught." Notwithstanding the waning of formal apprenticeship, such a requirement probably serves satisfactorily for certain occupations where long practice in manipulative skill is required, such as machine-shop, sheet-metal, and automobile repair. In any event, it serves to insure a considerable maturity among shop instructors. Undoubtedly it provides an automatic and therefore convenient way for State officials to simplify the task of deciding what constitutes "adequate trade experience." For many special courses, the standard set undoubtedly shuts out many capable men. We are strongly of the opinion that this is true with regard to all such highly specialized subjects, to illustrate, as welding, care and repair of storage-batteries, and linotype work.
2. *Trade ability*—the ability to use skill and knowledge in a trade or occupation. Such phrases are found in State plans as "exceptional skill in the subject to be taught," leaving to State officials the power to pass upon the matter in every case. This is wise.
3. *Teaching ability*—the ability to "put over" to others the skill or knowledge of the subject taught. Here again the requirement is stated in general language and wisely so. "Proven ability to impart knowledge or skill to others" is a characteristic description of what is required. Generally speaking, this requirement has in mind, in most cases at least, an ability acquired and demonstrated before becoming an evening school instructor.
4. *Good health*—usually stated in precisely these words. This requires no comment here.
5. *Good standing as a workman and as a citizen.* This likewise requires no comment.

6. *Training as an instructor.* In some States, a man who has had no formal teacher-training but who is regarded as a good teacher is permitted to teach shop subjects from year to year on a special permit without formal certification. In others, a time-limit is set on the use of such a permit in his case, after which he must meet the State requirements. In some States, a desperate effort is being made to build up a list of eligible shop instructors for evening school service by providing in the local community a course of instruction for such men in advance of employment. Usually this is conducted by the State supervisor of industrial and trade education in coöperation with the local director. In some States men can be employed as instructors, and the training required by the State plan is given to them through special classes while they are in service. Roughly, a minimum of about twenty-four hours in an instructor-training course is the time standard. (See Chapter XIV, "The Preliminary Training of Instructors.") Inasmuch as the problem of training instructors has been made the subject of the next chapter, the reader is referred to it for the further discussion of this whole matter. It is sufficient here to state that, for reasons given in the next chapter, the writers disagree with the prevailing tendencies among State boards in dealing with this matter in the certification of shop instructors.
7. *Previous general education.* In all the States there is a recognition that the shop instructor does not need any high degree of general education, and the reasons which justify this policy were presented in the discussion of the "Qualifications of Instructors" in the previous chapter. Roughly, the usual State requirement is that a shop instructor "shall possess at least a thorough elementary education." As the phrase is used, it restricts the service to those mechanics who hold a common-school diploma. Some of the States have been shrewd enough to add to the requirement just stated, the words, "or its equivalent." This is by far the more just and wiser safeguard.

Any one acquainted with workmen knows that in every line of employment there are "self-educated" men of proven ability who went to work before completing the elementary school, but who have taken advantage in many different ways of opportunities for self-improvement. They constitute the earnest, ambitious, thinking workmen of their line, and are therefore not only more capable as workmen and as teachers, but better "educated" even in an academic sense than many of their fellow-workmen who meet the technical requirement that they shall have been exposed to a full and formal elementary school course.

The Class-Room Instructor

We must confess that it is with a sinking feeling that we approach the policy of some States regarding what is termed "the teacher of related subjects." In our opinion, the present standards for this type of teacher are not only detrimental in some States to the real efficiency of the evening school, but represent a grave misconception of the real service which an evening school, under the Vocational Education Act, is designed to render. And it is the attempt to enforce these academic standards which, in some communities at least, has, more than any other cause, resulted in the failure of the school. Perhaps it would be better at this point to describe these State standards before making further comment.

Although it is not always clear, the teacher of related subjects must, like the shop instructor, have "good health," "good standing as a workman," and "proven ability to impart knowledge and skill to others." He must also complete a minimum number of hours in an instructor-training course, usually 200. (See Chapter XIV, "The Preliminary Training of Teachers.") Apparently in some of the State plans, the formal schooling required either answers for or cures any deficiencies in the first three of these matters, although every one knows that it does not. Here is a typical statement of the fundamental qualifications of an instructor employed to help workmen with their learning difficulties in specific trades and occupations.

"A teacher of related subjects shall present satisfactory evidence of the completion of a four-year high school course, at least

a two years' technical course, or in each case its equivalent, and at least one year of shop experience in the subjects to be taught." Of course the phrase "or its equivalent" has some saving grace because it gives State officials some leeway in granting credit to applicants who have acquired, outside the regular or formal schools, required "education" and the mastery of the technical knowledge which applies to their respective trades or occupations. But the very way in which the requirements are stated gives preference to the man who has been exposed to a long course of instruction in the absorption of general technical information, which is not what the student workman wants. At the same time, it discourages the man, or the employment of the man, who understands the application of that knowledge to the performance of operations and processes—in short, to the doing of real jobs, which is precisely the help which most workmen do want and which they attend evening school to get.

Emphasis on technical knowledge instead of trade understanding.—The idea in some States seems to be that there exists a body of general theory or technical principles which needs to be taught by a technician to workmen because, for some reason, workmen should know them. All that the instructor needs, beyond extensive schooling, is enough familiarity with the trade or line of employment to illustrate the application of these principles clearly. In this way the theory or principle will become fixed and the workman will bring it to bear on the problems of his trade whenever it applies. Teach the theory of the alternating current and illuminate it by a few illustrations from that field of electricity, and the worker will be equipped to use it on the infinitely varied and infinitely detailed problems which arise in that field. Since a high degree of technical knowledge is what the instructor must possess in order to teach that knowledge, his experience in the trade or occupation concerned is of very little importance; hence he is required to have only one year of shop experience in the subject taught. Mere exposure or contact with the shop, so that he "understands" the use of his subject there!

As if a technically trained man who had spent one year on some job in the field of electricity or even in the field of alternating cur-

rent electricity could give experienced workmen usable instruction about all such trade matters as *theory, mathematics, construction, operation, installation, troubles, and remedies* of A. C. motors, generators, switchboard and auxiliary apparatus such as remote and automatic control, alternators, synchronoms, synchronom motors, and transformers of all types. In fourteen years of experience with large numbers of A. C. workmen taking the wide variety of courses in A. C. electricity, the writers have never found a single man who could teach the subjects in that field to tradesmen without at least six years of thorough experience as a workman.

Trade understanding of instructor vital.—In the chapter on "Functioning Subject-Matter," it was shown that what workmen want primarily in the school shop is practice in the use of skill and in the class, practice in using (thinking with) occupational knowledge, to solve real trade problems. The teaching content of a class course is or should be a curious weaving or intertwining of practical knowledge (about processes, operations, problems, difficulties) such as only a capable and experienced workman can ever know or put over to others, and the usable explanation or reasoning back of this practical knowledge. No one but a tradesman of exceptional ability in his line can ever handle such a course. As a matter of fact, only such an instructor is able to analyze the trade or occupation; find real demands on workers; develop the functioning subject-matter; arrange it in lessons; organize these lessons into a unit course or courses; and develop the instructional material for these lessons. Incidentally, whenever training for any trade or line of employment is organized on a real unit-course basis, each unit dealing with some definite trade objective, the use of the technician with little practical experience becomes less and less possible because such courses show up in a pitiless way his lack of real knowledge of the trade.

There is a certain evening school in this country which for fifteen years has dealt with increasing numbers of workmen from many different occupations. Judged by the figures, its work must meet the real demands of wage-earners. But less than 10 per cent of its instructors could qualify under the State regulations for class-room instructors described above. They are masters of the

skill and knowledge used in the business, but comparatively few of them have completed a high school course and topped this off with two years in an engineering school.

Some State regulations do not fit many occupations.—As a matter of fact, the regulations of many of the States for the classroom teacher have been set up with a few old-time skilled trades in mind, such as machine-shop, forging, and pattern-making, for which training is given in the technical college; therefore the college idea has been applied that the technician needs intensive instruction in theory but only enough familiarity with the shop to comprehend the theory. How unreasonable and unworkable these regulations really are becomes apparent when we turn to other lines of employment. How could you ever secure in most local communities an evening instructor of class work in baking who has had two years of technical instruction bearing on baking, when only two schools in the country give such instruction and the course each provides is of an extension character and covers a period of only three months? If anything, these regulations become still more absurd when applied to instructors in such subjects as welding, plumbing, steam-fitting, carpentry, painting, paper-hanging, bricklaying, and a host of others.

Apparently the design of some State regulations is to turn over to the tradesman the shop work but to "save the class work for the educated man." On the other hand, the student workman is as a learner not concerned with this issue, but does want the real help about his real problems and difficulties that only a competent and well-informed man in the trade can give him. As long as the emphasis is laid on the technical schooling of the class instructor and his trade experience is treated as virtually incidental or negligible, many evening school students will get what they *don't* want. When the point of greatest emphasis is shifted in the State regulations from technical knowledge to trade mastery of skill and knowledge, they will get what they *do* want. In our opinion, this issue is vital because at least 80 per cent of the students of an evening school take class and not school shop instruction.

Some questions answered. There should be no misunderstanding here. Do we believe that it is desirable for instructors to have

as much technical education as possible? Yes, of the kind that really functions in the subject taught and provided that the instructor (1) knows the trade or occupation he teaches; (2) is able to select from what he knows the usable ideas and facts that his student workmen need; and (3) can put these over so that his students can use them. Do we believe that the engineer makes a good teacher? Yes, if he has a mastery of the use in a practical way of his technical information in the trade or occupations represented by his students. Do we believe that one year's experience in a trade or line of employment is sufficient for any technician who is to teach a trade subject? Yes, for a very few simple occupations, such as welding and the repair of storage-batteries. But for the great body of trades and occupations, emphatically no! Do we believe that the class work for workmen should be taught by an experienced workman? In 95 per cent of the classes, at least, yes. Do we believe that the instructor should be master of the trade and technical knowledge he teaches? Yes, by all means, but this mastery should be a working mastery acquired by its use in the trade and not through mere exposure to it in some school. Do we believe it desirable for such an instructor to have had such schooling? Yes, but the important thing is not where he receives it but whether he can use it. There are many ways by which such knowledge is gained, and all of them should be recognized and encouraged. There is only one way, however, by which the ability to use knowledge in the trade is gained, and that is by the practice of the trade. Should instructors in class work be required to have both adequate trade experience and working mastery of the knowledge they teach? By all means.

Summary.—All the foregoing discussion of certification can be summarized in this fashion: The prime asset in 95 per cent of the instruction in evening extension courses for the trades and industries is the mastery by the instructor of the specific skill and knowledge he is to teach. This applies to both the instructor of shop work and the instructor in the class-room.

The main ingredient of such a working mastery is successful experience in the trade or occupation as a workman and foreman; consequently, there should be no distinction between these two

types of instructors regarding the previous occupational experience required for each. Primarily, one type gives student workmen usable skill, and the other, usable knowledge. To discharge either of these tasks efficiently, the same amount and degree of previous experience is, generally speaking, necessary, and this should be recognized in certificating both kinds of instructors. If adequate trade experience for the shop instructor is to be measured by the number of years he has followed his trade, then the same number of years should be required of the class-room instructor. If anything, the latter needs a longer and not a shorter experience for his subject. If the phrase *exceptional skill in the subject to be taught* is used to describe the trade ability of the shop instructor, then the same phrase or its equivalent should be employed to define the trade ability required of the class-room instructor.

The two steps.—State boards should classify teachers as instructors in trade skill and instructors in trade knowledge. They should then leave their administrative officers free to determine the ability of a prospective instructor to teach any given shop or class-room subject. The sooner in our thinking we get rid of the phrase *teachers of related subjects*, the quicker will we cease looking upon technical information as something apart from—not closely connected with—the trade. Then we will insist upon teaching only those facts and ideas which are usable in the trade by student workmen; which are taught in a usable way; and which are taught through the participating experience of students in applying them to trade problems.

If the trade ability of the shop instructor is to be insured by requiring from him exceptional skill in the shop, then the trade ability of the class instructor should also be ensured by requiring from him at least exceptional skill in the use of the subject he teaches. But the exceptional skill of the former in shop processes cannot be established solely by the number of years he has followed the trade. Some other means must be used to prove this skill, such as a trade test, a demonstration test, references, or all of these devices. Similarly, the exceptional skill of the class instructor in the application of his subject to trade problems must be established either by a trade test, a demonstration test, or references, or by

all these means. Surely it is as easy to determine the trade skill of both kinds of instructors by appropriate tests as it is to determine in advance of employment their ability to teach; and in our opinion, it is much easier. Reliable tests of skill in shop affairs can much more readily be devised than tests of teaching skill, and the results of the test are much more readily evaluated.

If this be true, then State certification should abolish the regulations as to high school and technical school education for classroom instructors. There should be placed in the hands of the officials of the State board the responsibility and power of determining the grade of ability (skill) of each applicant in applying the subject he teaches to real trade situations and problems. Virtually all State boards have already adopted precisely this policy in passing on the trade skill of the shop instructor and in passing on the teaching ability of both shop and class-room instructors, their health, and their trade and community standing. "Eventually—why not now?" One way to accomplish this step would be to strike out the regulations as to higher and technical schooling and substitute in place thereof some such phrase as *exceptional skill in the application of his subject to the operations and processes of the trade or occupation where it is to be used*. This will not by any means bar men with engineering training from the evening school service, but it will bar most of them who are without adequate commercial experience in the use of the subjects they teach.

In closing, let us say that it is fully recognized that there are a few class subjects in the evening school to which, on first thought, the foregoing policy would not apply. An instructor in mechanical drafting, for example, has usually had training in some technical school, but no experience as a tradesman in any mechanical line. Should he be required to possess such an experience? The answer is no, because he is training experienced workmen for a new trade (art or profession), and not instructing them in the demands of an old one. In addition to being a mechanical draftsman, however, he should have acquired through adequate commercial experience exceptional skill in the use of his art for production purposes. For the same reason, an instructor in architectural drawing should show exceptional skill in the use of his art in building construction.

The same reasoning would apply to instructors in such subjects as the use of the slide-rule and the heat treatment of steel.

At the same time, however, we believe not only that a special unit course in blue-print reading should be offered for each trade separately, but also that the course should be taught by a tradesman skilled in the use of blue-prints in his line, and not by a professional draftsman. In smaller communities, at least one unit course in blue-print reading would doubtless be offered for building construction, another for the metal trade, and possibly a third for the electrical trade. Even here we believe that such courses should, whenever possible, be taught by competent workmen from some trade within the group of trades.

One very important phase of the problem of certificating and selecting instructors is that of fitting them for the special duties and responsibilities of the teaching job, a phase which is discussed in the chapter to follow on the preliminary training of instructors.

QUESTIONS

1. Discuss this thesis: In the evening extension industrial school, it is just as necessary that the instructor of a class subject should be a competent workman in the trade or line to which the course applies as that the shop instructor should be competent in the same way.
2. Are attendance on advanced schooling, academic degrees, and the like, any real evidence of the actual efficiency of a man as an instructor in the evening industrial school? Why?
3. In the chapter, seven devices are suggested for testing the qualifications of applicants for a position as evening school instructor. List these devices in the descending order of their efficiency, as you view them.
4. In the chapter also, seventeen questions are suggested for use in passing on the ability of the applicant to "put over" skill or knowledge to others. List these questions in the descending order as to their importance, in your opinion.
5. Twelve questions are suggested in this chapter for use in determining whether the applicant has the necessary minimum of general education. List these questions in the descending order of their significance for this purpose, in your judgment.

CHAPTER XIV

THE PRELIMINARY TRAINING OF INSTRUCTORS

It is one thing to know a trade or occupation, but quite another thing to teach it to others. After the best possible man has been secured, he must next be trained in the process of his new job as instructor in his subject. To this job he brings from his previous experience as a workman certain indispensable assets in trade skill and knowledge; a certain ability to "put over" to others what he knows; and a certain ability to analyze that trade. But he must now take over a new trade, acquire ability in a new line. He may or may not have received some previous teacher-training. In either case, he requires further help after he becomes an instructor. This chapter is concerned only with the pretraining of instructors, leaving to the following chapter their extension training on the job.

The Conditions to Be Met

Any intelligent discussion of the many problems involved should be based on a clear understanding of the actual conditions faced by almost all the evening industrial schools of the country:

1. Only in those communities where there is also a day preparatory trade-school is there at hand a supply of experienced workmen who have already had experience as school instructors in their respective trades.
2. Obviously, this group of instructors can only be used by the evening school for the limited number of trades and occupations in which the day preparatory school offers training.
3. Even in such communities, therefore, the evening school must recruit instructors directly from those trades and occupations which are not included in the day-school service.
4. Even in the case of any trade taught in the day-school, a large evening school must recruit additional instructors from that trade and also for every unit course for the trade which requires a specialist to teach it.

5. As the number of day trade-schools is very small, the big problem of most evening schools, and indeed of all evening schools, is the selection and training of instructors drawn directly from the trades.
6. Any successful scheme of recruiting and training such instructors must first of all recognize certain characteristics of these workmen.

Certain characteristics of workmen as instructors.—There are certain distinctive traits and peculiarities of the workman which, when analyzed, justify this statement: The more competent he is as a workman, the more difficult it is to secure him as an instructor, and for these reasons:

1. The more competent he is as a workman, the greater his wage.
2. The greater his daily wage, the less the interest he has in the financial side alone of the job of evening school instructor, and the less dependent he is on such a job as a source of income.
3. The more competent he is as a workman, the greater his pride in his trade and his interest in its welfare.
4. The more competent he is as a workman, the greater, usually, is his interest and sympathetic understanding of workmen in his own line and of their difficulties and needs.
5. The more competent he is as a workman, therefore, the less he will be influenced by the wage paid to instructors and the more he will be moved by the thought (argument) that, as an instructor, he would help other workmen and thus benefit his trade.
6. The less dependent he is upon the evening school job, the less willing, usually, is he to take teacher-training as an instructor before employment.
7. The less dependent he is upon the evening school job, the less he looks to it as a means of permanent employment.
8. The less he regards the evening school job as permanent, the less willing he is to take special courses in teacher-training merely to qualify for a professional or life certificate as a teacher in his subject.

9. Although he is conscious of his own ability as a workman, he usually feels that he was "not cut out to be a teacher."
10. Usually he looks upon teaching as work that can be done only by a professor who has had many years of schooling.
11. As a result, he also fears that he cannot teach because he does not have diplomas and degrees.
12. He has a certain job pride, and the more competent he is as a workman, the more reluctant he is to undertake a new kind of job where he fears he may not measure up to requirements.
13. Once he becomes an instructor, however, the more competent he is as a workman, the more his job pride will cause him to make every effort to succeed on the new job.
14. The greater his job pride as an instructor, the more willing he is as a practical man to receive and use any kind of help which proves of real value in the performance of his teaching job.
15. The greater his job pride, therefore, the more he profits from competent supervision of his work on the job and from practical teacher-training.
16. The more competent he is as a workman, the more he has been accustomed to seek and use only the kind of facts or ideas which help him in his daily occupation.
17. The greater his job pride, therefore, the less willing he is to take formal courses in general and theoretical subjects which do not function on his teaching job.
18. The more competent he is as a workman, the more he approves and profits by a system of apprenticeship training for the teaching job, but the less he accepts any artificial substitute for real training on the job.

All the foregoing characteristics of the workman teacher can be summarized in some such chart as the one on pages 178 and 179.

A serious dilemma.—If the foregoing analysis be sound, then the evening school director is confronted with a serious dilemma. The more competent a workman is, the more difficult it is to secure him as an instructor; the less competent, the easier it is to secure

CHART XXII

SUMMARY OF CHARACTERISTICS OF THE COMPETENT AND THE LESS COMPETENT WORKMAN

<i>Item</i>	<i>Competent workman</i>		<i>Less competent workman</i>	
1. Adequate trade skill and knowledge	More		Less	
2. The ability to analyze his trade	More		Less	
3. The ability to "put over" what he knows to others	More		Less	
4. The ability to think (use sound thinking methods)	More		Less	
5. The ability to organize	More		Less	
6. Successful in position and wage	More		Less	
7. Keeps up with his trade by reading and thinking about new devices and improvements of the old devices	More		Less	
8. Pride and interest in his trade and its welfare	More		Less	
9. Interest and sympathetic understanding of workmen in his trade	More		Less	
10. Interested in benefiting the trade	More		Less	
11. Interested in helping other workman of his trade	More		Less	
12. Primarily interested in the evening school job as a service to the trade and its workmen rather than in the pay he is to receive	More		Less	
13. Reluctant to take pretraining courses to qualify as an instructor	More		Less	
14. Regards evening school job as temporary employment	More		Less	
15. Reluctant to take long courses leading to professional or life certificate as instructor	More		Less	
16. Conscious of ability as a workman	More		Less	
17. Feels that he is "not cut out to be a teacher"	More		Less	
18. Looks upon "teaching" as work that can be done only by a "professor" or "highly educated man"	More		Less	
19. Feels that he cannot teach because he lacks diplomas and degrees	More		Less	

CHART XXII—*Continued*

SUMMARY OF CHARACTERISTICS OF THE COMPETENT AND THE LESS COMPETENT WORKMAN

<i>Item</i>	<i>Competent workman</i>	<i>Less competent workman</i>
20. Reluctant to undertake a new kind of job in which he has had little or no previous experience	More	Less
21. Makes earnest effort to "put over" the teaching job when once undertaken	More	Less
22. Willing to receive or use as an instructor any kind of help which proves of real value on the teaching job	More	Less
23. Profits from supervision of his work on the job and from practical teacher-training	More	Less
24. Accustomed to seek and apply usable facts and ideas in his daily occupation	More	Less
25. Reluctant to take formal courses in general and theoretical subjects which do not function on his teaching job—"get nowhere"	More	Less
26. Approves and profits by a system of apprenticeship training for his teaching job	More	Less
27. Disapproves any artificial and non-functioning substitute for training on the job	More	Less

him. This is serious because from the more competent workmen come the best instructors. From the standpoint of efficiency, the first consideration in any plan of securing and improving instructors should be to make sure that the most successful workmen possible are obtained and the less capable avoided. Any plan which fails to do this is inefficient. When the evening school director attempts to use the customary scheme of obtaining teachers, he finds himself confronted at every turn by those characteristics of competent workmen which defeat his aim.

Assuming that all workmen, like most teachers, are interested in taking on a teaching job, a public announcement may set a fairly good wage, describe the job, and invite applications. There will possibly be numerous and immediate responses, but when he examines these, he will soon see that they do not come from the most competent workmen. If he is wise, he will conclude that if the latter are to be secured as instructors, he must *seek for them personally* and not by the usual wholesale advertising. If the plan requires an applicant to have or to take in advance of employment a pretraining course of instruction as a teacher, he will soon learn that the more competent the workmen, the less likely they are to possess such a qualification and the less willing they are to take such training in order to get a job.

If his plan provides an increase in hourly wage from year to year for those who take certain professional courses, he will soon find that competent workmen, who have been accustomed to have their wages determined by their efficiency on the job, are unwilling to have their wage on a new and strange job determined in any such artificial way. Imagine a shop where the wages of workmen were not set according to what they were worth, but by the number of lectures they had attended on technical subjects! If the plan announces that, in order to remain in the service, instructors must, within a fixed time, secure professional or life certificates as teachers by attending courses in various subjects, most competent workmen, at least, will refuse to enter the service because they do not rely upon it as a life job.

The real problem to be met.—To complicate the situation still further, there are other conditions which play a vital part. The

difficulties and dangers have just been described that lie in the path of the attempt to build up in any local community a large staff of pretrained instructors for evening school subjects. A large call staff of workmen of some kind can be secured in a few larger communities, but only in certain lines has the pretraining of prospective instructors been successfully done. This is because only a few trades can be depended on to furnish a considerable number of learners from year to year, such as machinists, automobile repair men, printers, electricians, and workers in the various building trades. Even in these larger communities, the school officials face in almost all other lines the problem of finding an outstanding workman; of inducing him to undertake the job of teaching his subject; and of giving him some kind of extension training as a teacher. It is precisely this problem that more than 95 per cent of the evening industrial schools of the country face in the case of virtually every instructor.

A workable plan.—As Grover Cleveland once remarked, "It is a condition which confronts us, not a theory." The solution does not lie in any "jigged and fixtured" plan of training, qualifying, paying, and promoting evening school instructors, but in a flexible scheme which leaves large discretionary power in the hands of State and local officials and gives them a corresponding responsibility for securing the most competent workmen and for making them into good instructors. The former plan is always the easiest way and the safe retreat of perfunctory officialdom, but the latter is the only one which will work, if by *work* is meant ensure, to student workmen, efficient service. Among the earmarks of an effective scheme are all such features as the following:

1. The evening school instructor for any given subject is hand-picked from the most competent workmen and not automatically selected.
2. If a limited period of pretraining as a teacher is provided, it is not made a stated requirement which prevents the employment of the workman best fitted for the job.
3. The pay for the evening school job advances from time to time from a minimum to a maximum limit.

4. This advancement is not automatic from year to year, but earned as a reward for improved work as an instructor.
5. This improved work as an instructor is just what it means, a better performance of the teaching job.
6. This better performance of the teaching job is not measured by any such artificial device as exposure to courses in education of any kind, but by the improvement of the instructor in doing the thing he is hired to do.
7. He is helped to improve his service by the kind of supervision from officials that gives real help.
8. State and local officials are expected to and are held responsible for this supervision as the most effective kind of teacher-training.
9. Competent instructors who meet the requirements of this kind of real teacher-training are given credit for it as satisfying the requirements for teacher-training.
10. Along with this goes only the irreducible minimum of formal or class-room teacher-training.
11. Competent instructors so trained are retained as long as they "deliver the goods."
12. They are not harassed, discriminated against, or driven out of the service by "higher general education requirements" or the demand that they earn professional and life certificates or by the snobbery of the ultra-scholastic mind.

Conditions necessary to secure and improve competent instructors.—Such a flexible plan is not only most efficient, but is entirely workable provided these conditions are present:

1. State and local officials have the courage to handle every man's case on its merits rather than hide behind the protection of regulations and practices that defeat their own end, if that end be the securing of a competent workman and his development into a teacher.
2. They have the courage and ability to measure the real efficiency of the instructor in the teaching of his subject, and do not avoid this responsibility by the customary trick of rating teachers by the number of college credits they have obtained.

3. Local officials have the courage to set wages and increases in wages on the basis of their findings as to the actual efficiency with which the work of each instructor is performed.
4. They reduce preliminary training of instructors to the irreducible minimum of indispensable help workmen need in starting on the job of teaching.
5. They have the willingness and ability to train every instructor in the better performance of his teaching job, by real supervision of his performance of that job.
6. They measure the fitness of every instructor to remain in the service by the ability to teach his subject which he shows in teaching it, and in no other way.
7. They permit workmen to be employed temporarily as instructors without previous experience or training as instructors, unless it be that described in paragraph 4 above, and certificate them on the basis of their demonstrated ability to teach as shown upon inspection.

The Preliminary Training of Instructors

In a few large centers, as already stated, preliminary training is offered to all persons otherwise qualified, the aim being to fit for the teaching job those who meet the requirements of this course. Some of them will be selected to teach their subject when the next evening school is operated, while the others constitute a call staff. From this call staff, substitutes are drawn to take the place of the regular instructors, when for any reason the latter must be absent; to fill vacancies; to provide regular instructors for additional classes in old subjects; and to provide regular instructors in new subjects as the demand arises during the evening school session.

The period of preliminary training usually ranges in length from ten to fifty hours. Usually also, the longer the course, the less direct it is in dealing with the real problems of the teaching job in an evening school. The greater the time required, the more likely it is that the most competent workmen will refuse to qualify for employment in this way. Where practical and not academic notions about teaching prevail among those responsible for the evening school, excellent training is being given.

Success factors in preliminary training.—When this happens, the course has these features:

1. The teacher-trainer does not lecture, but teaches.
2. He demonstrates proper methods of instruction by using them himself.
3. He confines himself to the few laws of pedagogy which really apply to the teaching job, such as:
 - a. The simple tests or laws of habit by which we learn and retain what we learn
 - b. The apperceptive basis of experience on which we build new skills and new knowledge
 - c. The doctrine of interest as a vital factor in learning
 - d. The four steps in sound teaching: preparation, presentation, application, and test
4. He states these laws of pedagogy simply, explains them with illustrations drawn from the experience of his student workmen, and applies them to the real problems of the teaching job in the evening school.
5. He sets his students to thinking with these laws about these problems, and these problems only, and has them work out these problems by using these laws as a constant guide and check.
6. He shows them how to make a trade analysis of some trade with which he is familiar for the purpose of breaking up a trade into groups of occupations so that each group contains only those occupations which present the same kind of problems or learning difficulties and therefore require the same kind of skill and knowledge. He then has the student make this same kind of trade analysis for his own trade or line of employment.
7. He shows them how to make a job analysis of some occupation and find the functioning subject-matter for learners in that occupation, and then has his students make a similar job analysis of some occupation in the line in which each is employed.
8. He shows them how to break this functioning subject-matter up into unit courses of instruction and then has each student

do this for a given occupation in his own line of employment.

9. He studies with the class the characteristics of the student workmen who attend the evening industrial school and, on the basis of the findings, works out with the class sound policies and methods in handling student workmen.
10. After he has explained and demonstrated any method or device in teaching, he has members of the class prepare a lesson and do the same thing.
11. He employs this same scheme of teaching through demonstration by him and participating experience by his learners to all such additional matters as class-room management, the use of evening school records and forms, the preparation and use of job sheets, the preparation and use of lesson plans, and the use of teaching devices and materials.
12. He confines himself exclusively to functioning subject-matter—gives only the kind of skill and knowledge which his group of prospective instructors can understand and use in the job of instruction in an evening industrial school.
13. He uses every teaching method and device that will work in performing this task, from demonstration to class discussion and conference, but through it all he regards himself as a trainer helping learners practise sound habits of thinking and doing a specific job of teaching.
14. As a trainer he performs two services only: starts them in the practice of correct habits; and checks (supervises) them in that practice.

Value of preliminary training.—Without doubt, such a course is of great value, particularly to those who soon secure employment as instructors. Foremen, even though they may never be called instructors in the evening school, will find that the training fits into their daily work where they must break in workmen on new jobs and improve old workmen on old ones. By practising what they have gained from the course, they are also much better prepared when they are called to teach. When such a course succeeds in building up a large call staff of instructors, however, many of whom will be well qualified to teach, the next problem is to classify

and keep available the services of such men. One way to keep such a call staff is to use its members as substitutes. For every regular instructor teaching an evening class, there should be at least one other instructor to take his place in case of sickness or the like. Such a substitute must either be pretrained or given some previous experience in teaching to break him in on the job if he is to be called upon in an emergency or for some reason falls heir to the regular job. Using a call staff man as a substitute makes it possible to try him out and thus determine his ability to teach his subject. As was pointed out at the beginning of this chapter, however, the preliminary training of instructors can never prepare them for the teaching job in the evening school. At the best, it is only one step, and the least important step, in making them efficient *teachers*. It is only a prelude to the far more important and difficult task of training them on the job itself—a phase of the problem discussed in the next chapter on training instructors in service.

QUESTIONS

1. What methods would you suggest for avoiding the employment as an evening school instructor of the "lame duck" workman?
2. By what policies can the evening schools of any State secure competent tradesmen as instructors?
3. In the paragraphs of this chapter headed "A workable plan," twelve "earmarks" are described of an effective scheme for securing competent workmen and making them into good instructors. Check these "earmarks" against the policies and procedures of your evening industrial school or one with which you are familiar. Why the differences, if any?
4. Study the plan for the preliminary training of evening school instructors in your community or State. Check this plan against the fourteen success factors in such training listed in the chapter.
5. In the chapter, seven conditions, State or local, are described which are necessary in order to insure the selection and improvement of competent instructors. Check these conditions against those of your State and community. Why the difference, if any?

CHAPTER XV

TRAINING INSTRUCTORS IN SERVICE

For a number of reasons, most of the training of evening school instructors is essentially extension in character and always will be. In our opinion, no other plan will ever meet the existing conditions or produce efficient instructors. Most evening schools have not and never will have a call staff of pretrained men. Instead, the typical director must use quite a different plan and, we believe, a more efficient one. When he needs an instructor, he picks one and proceeds to train him in various ways, according to the circumstances, for the performance of the duties of his teaching job. The demands of this job are direct and immediate, therefore the training must also be direct and immediate.

Meeting the Real Conditions

Conditions in recruiting and training instructors.—As the labor turnover among evening school instructors, once they enter the service, is very small, the problem is not one of recruiting a large number of new instructors every year, but of picking and training a few men. When the need arises for an instructor before the evening school starts, more time is of course available during which to help him get ready for the job. Very frequently, however, the demand arises for a certain kind of instruction—for courses not planned in advance—after the evening school is in full blast. Usually this demand is immediate, and the course must be started within a week or ten days. As the workman selected is regularly employed in his trade, he can spare only a limited time to preparation for the new job. These are the actual conditions under which most evening school instructors are recruited and inducted into the service. What shall the director do?

Getting the new instructor started.—The problem is to give him as much practical help as is possible both before and after he

starts on the teaching job. Most of this help must be given to him individually and not in groups, as no two of these men have exactly the same needs or require the same amount of help at the same time. Of course, preliminary evening meetings of the instructors who have been selected to teach when school starts are helpful. By this means, a great many instructions and suggestions about the work can be given to old and new instructors. Indeed, this is just as necessary and profitable also in those evening schools which select most of their new instructors from a pretrained call staff. In our opinion, where more than two preliminary meetings are held, the instructors should be paid at their regular rate for attending. Most of the help, however, which the workman needs before starting on the teaching job is personal and can best be given to him personally. All the suggestions made, in the chapter on "The Preliminary Training of Instructors" regarding success factors in teacher-training apply in the dealings of the director with the individual instructor (see page 175).

Help in homeopathic doses.—Much is gained when the director assumes the attitude of a journeyman giving apprenticeship training to an inexperienced learner on the job. When he does this, he ceases to talk generalities and "gets down to brass tacks" by giving the learner only what he can understand and use at different stages in his progress as an instructor (learner of the teaching job). This learner, of course, needs to know some things about all such matters as managing a class, making out student records and reports, and using certain simple but sound methods of teaching. He does not want and cannot profit by theoretical instruction about these matters, such as would be given to leaders and long-experienced instructors. Too much theory about how to teach, for example, will only confuse and discourage him. It is much better to give him a few simple fundamentals of teaching at the start and help him carry these out on the job. With this kind of preliminary help, let him get started. Check him up to discover weaknesses that require attention. A few words now and then will do more for him than hours of theory, because his experience shows him the need of the proposed changes, and seldom, as a result, does he fail to profit by each suggestion.

The biggest task with the new instructor on which most of the available preliminary time should be spent is that of getting him to lay out his whole course in the right order; plan the unit courses into lessons arranged in proper teaching sequence; and block out in the right order the teaching points of each lesson of his first unit. And do all this as far as possible before he starts to teach. This means elbow-to-elbow work between the director and the man in which the former shows the latter how to make trade or job analyses and sets him to work out his own problems under supervision. As the labor turnover is usually low, the number of new instructors to whom the director must at any given time give such preliminary help as has been described in the foregoing paragraphs is usually small. There is no reason why it should not be given, and given personally. In fact, this is the only way it can be given properly.

Supervision the vital factor.—No other responsibility of the director of the evening school is so vital and therefore justifies, as well as requires, so much time as this supervision of the work of his instructing staff. Only through a continued process of discovering troubles and difficulties, explaining, suggesting, instructing, teaching, directing, and checking the results of his efforts, can any director make a competent workman into a first-class instructor or discover early that in spite of the greatest care in his selection, the latter is hopeless, and should be dropped from the staff. Only through regular, careful, and above all, patient supervision by a director competent in such work, can extension training be made effective. It must be recognized also that this applies virtually as much to pretrained instructors as it does to those trained entirely on the job. To assume otherwise is as foolish as to imagine that a good workman can be produced in a shop by leaving him entirely to his own devices because he belonged to a group that had once attended ten hours of preliminary instruction about the job! Pretraining may make the task of supervising the instructor a little easier, but never take its place!

Training the instructor on the job.—For many reasons, most of the training must also be individual. No group of instructors all have the same difficulties and therefore the same needs. They

teach classes on the same nights, alternating nights, or "off nights." This complicates group work and makes group meetings almost impossible, because they can be held successfully only on vacation nights, Saturday nights, or before the season begins. Since, in addition, all men need different kinds or degrees of help, the supervision of their improvement reverts to the individual method of training on the job.

This training on the job must be done in all sorts of ways: in the office on extra nights when the instructor is not teaching; at the desk when he registers in for his regular evening's work; in the hall when he is on his way to class; at recess time; in the classroom or on the shop floor; after class hours; in a faculty meeting; in a special extension class for new instructors; or when you are out fishing with him.

Kind of help needed by the new evening school instructor.—When he begins, everything is new and strange, as it is usually an experience entirely different in many ways from any he has ever had before. The worst thing that can be done for him is to hurl at him a mass or mess of theories and, to him at the time, useless and confusing information. He is no different in this respect from a novice workman in any other occupation. He makes progress on the teaching job only as the director of the evening school, seeing his general or common needs, gives him help as required in a direct and practical way; and, detecting his special troubles, helps him in the same manner to remedy them.

Meeting the common needs of instructors.—There are certain common needs or helps for all instructors which the director must recognize and make sure to give. He needs to set up a check-list of all such matters and plan in a systematic way efficient methods of helping each instructor with them. Some of the common needs which his list should cover are discussed below:

1. *Simple principles of teaching.* As long as suggestions about how to teach are based on simple common-sense facts which his own experience shows to be true, the competent workman takes to them like a duck to water. The four steps in teaching, preparation, presentation, application, and test, are logi-

cal and he sees at once the use which he can make of them. In many cases he has already used these same steps himself in the instruction of workmen without recognizing them. He knows from sad experience that only an interested workman ever really learns new skill or new shop knowledge; consequently, he is ready for suggestions as to ways and tricks for securing or holding the interest of his students. While he is a little staggered by *apperceptive basis of experience* and will probably never use that term if he can avoid it, he understands what is meant when it is pointed out that we always learn a new thing by tying it up with something we already know or can do. This is what he has always done as a workman, and he is ready to accept its truth and its applications to his teaching job.

At once he recognizes skills as established habits of doing things. From his knowledge of the way in which he learned skills, he quickly takes over the laws of habits in learning skill and knowledge and begins to apply them to his own teaching problems. As a workman accustomed to work by practical formulas derived from abstract knowledge, he works best, as a new instructor, with formulas or simple rules derived from psychology and pedagogy which he can understand, accept, and use and not with abstract notions or theoretical discussions. It almost goes without saying that it is the business of the director to see to it that in his teaching the instructor applies these simple rules. They should also be used as the basis of helpful criticisms and suggestions to the instructor regarding methods and policies.

2. *Help in keeping records.* The instructor will soon grasp the record work, but should not be harassed about it at the start when he is facing so many new problems. This record work should be as simple, and there should be as little of it, as possible. In many cases, the school can well afford to take care of an instructor's records and gradually ease him into full responsibility for them. As much as possible of the necessary paper-work should always be done by the office. It is foolish to use the time of a high-priced instructor on cleri-

cal work that can be done just as well or better, by a clerk costing from fifty to sixty cents an hour.

3. *Help in the selection and use of instructional material*, such as lanterns and slides, charts, parts of machines and devices, cut away parts, sectional parts, diagrams, blue-prints, trade catalogues, moving-pictures, lesson sheets, and teaching plans. By interviews at various times and places, the director covers all these matters, getting the instructor started on as many of them as possible before he starts to teach. Here the game is to explain, to illustrate, and then to start the new man on the task of getting this material ready, a task on which he must "come through" for himself. It will require much of his spare time and energy throughout the course. About the best he can do is to plan ahead and keep ahead far enough to meet the demands of each lesson. Constantly, through the course, particularly during the first year, there must be supervision by the director, checking the situation and making helpful suggestions to his apprentice instructor.
4. *Help in handling students*. The instructor usually needs some direct help in how to handle students. This includes all such things as admitting, enrolling, examining, grading, and reporting them. It also includes such additional matters as efficient class-room and shop arrangements, efficient teaching conditions as to attention and conduct, and efficient procedures in group teaching, such as methods of questioning a group so as to secure the thinking participation of all members of the class in all the instruction.

Certainly all these helps cannot be given to him before he begins to teach or in one dose. They must be handled in piecemeal style. The apprentice instructor is a very busy man, beset by many new demands, who profits by suggestions and directions best when they are given at the right time. It pays any director well to study every new man and time his help so as to dole it out in such quantities and at such times as will best fit the case in hand. Recognizing the many important details in class-room and shop-room management with which the new instructor is confronted,

one evening school furnishes him when he is appointed a comprehensive statement called "Mistakes in Teaching" which covers some forty of the common troubles and shortcomings of instructors. He is told that these represent a number of the conclusions on the matters treated which the school has gained from its long experience, and is asked to put the suggestions made into practice as much as he is able. When such a course would be helpful in the process of supervision, the director can refer the instructor again to specific statements in this code as one means of checking specific troubles in teaching and of correcting them. This is illustrated here by selecting from it twelve items in the following chart. The numbers used are not corresponding numbers of the code.

CHART XXIII

SELECTED ITEMS OR ILLUSTRATIONS FROM AN INSTRUCTOR'S CODE ON MISTAKES IN TEACHING

1. It is a mistake to teach a new lesson without first reviewing the previous lesson or without first explaining the new lesson and preparing students for the subject to be taught in the new lesson.
2. It is a mistake to assign a new lesson without first finding out whether the students are prepared to take it up or without first explaining the new lesson.
3. It is a mistake in teaching shop work for an instructor to leave a student before he fully understands the particular piece of work he is to do.
4. It is a mistake not to assign and require home study in the preparation of lessons and the solution of problems. Make definite assignments. Always check them up.
5. It is a mistake for a class-room instructor to teach any lesson without suitable material for demonstrating and illustrating the subject of that lesson.
6. It is a mistake to use big words in teaching. Where a technical expression is employed, it should be explained at the same time, illustrated, and given its trade equivalent.
7. It is a mistake not to set up definite standards for the class in learning skill or knowledge or in the solution of problems. Hold to these standards. Be patient with the weak and stumbling, but insist upon your requirements when it comes to approving work, holding tests, and issuing certificates.
8. It is a mistake to have chorus recitation or to ask questions of students in

rotation or to call on only "bright" students or to depend on volunteer answers or to indicate in any way who is to be called upon for the answer to the question before it is first stated. A good questioner gets results from his students by making all of them think the answer before one of them gives it.

9. It is a mistake to accept a mere repetition of words as evidence of understanding and thinking. The test is not what a pupil says, but whether he understands what he says.
10. It is a mistake to think that detecting errors is the same as correcting them. Most of the questioning of a class should be done for the purposes of finding out what pupils do not know so that their wrong ideas may be checked and corrected.
11. It is a mistake for an instructor not to check each piece of work that the student does in the shop and not to comment upon the accuracy, neatness, or grade of work. Whenever it is at all possible to do so, some points or features in the work should also be found where the student has made some progress and for these he should be commended and encouraged.
12. The worst mistake that an instructor can make is that of coming to his students without first carefully outlining and preparing his lesson for the evening. All work should be carefully outlined and the proper methods selected for "putting over" the lesson.

Trouble-shooting in Teacher-training

Essentially, the director of an evening school is a foreman of production—the production of better trained workmen. In the discharge of this task, he may and does delegate different responsibilities and duties to others, but his is the primary or main responsibility as the direct head of the enterprise. As a foreman, all his responsibilities can be summed up in this statement: He is expected so to conduct the evening school as to secure the best possible results in instruction for the money expended. He affects cost of production by eliminating waste, by reducing overhead costs, by preventing overlap or duplication of effort, and by avoiding red tape. In this way he saves money where it is not needed and thus has it available for use where it is needed. But he also affects cost of production when he improves the performance by an instructor of his teaching job because he gets better results, a better product for the same cost. In this chapter we are concerned only with the foreman as the supervisor of instructors—as improver of their performance of the teaching job.

Three large responsibilities.—In discharging this duty, the director (and the immediate staff under him) has three large responsibilities. The difficulties and shortcomings of the instructor must be discovered, found, and defined; some plan must be made for helping the instructor overcome these troubles; and that plan must be put over so as to get results in improved work. In the first rôle, the director is essentially a trouble-shooter; in the second, a planner; in the third, a director (executor) of the carrying-out of his plan. Probably enough has already been said about the wide variety of instructors and their subjects to prove that, generally speaking, these responsibilities can only be discharged by dealing with each instructor as a separate problem.

Trouble-shooting the performance of the teaching job.—For a further discussion of this same matter, the reader is also referred to Chapter XXIV. There are two ways in which the director deals with trouble. He may discover something going on in the performance of the instructor which is wrong because it produces poor results in teaching; then it is his duty to get the instructor to remedy the trouble. He may discover poor results which are due to some cause; it then becomes his duty to find the cause and remedy it. In the first case, he deals with a known or visible trouble sure to produce poor results. In the second case, he is dealing with an unknown or hidden trouble which has produced poor results. In either case he must discover or uncover the trouble; spot or locate the real cause; and then remedy it.

Trouble-shooting known or visible troubles.—It will not be possible to give a complete list here, but only to furnish an illustrative list of the kind of easily detected shortcomings in instructors which affect their efficiency in teaching and which directors need to be on the alert to detect and correct. See Chart XXIV on page 196.

Most of the foregoing shortcomings of instructors "stick out like a sore thumb" when present and are therefore easy to "spot." When one of these weaknesses is detected in the work of any instructor, however, the director, before he sets up a plan to help that instructor, will find it profitable to seek the real cause for the weakness. He can then focus his plan on this real cause. Suppose,

CHART XXIV

VISIBLE INEFFICIENCIES AMONG INSTRUCTORS OF THE EVENING INDUSTRIAL SCHOOL

1. Late in getting on the job
2. Fails to turn in lesson plans
3. Does not start class on time
4. Fails to review former lesson
5. Attempts to obtain teaching material after class or shop work has begun
6. Fails to requisition instructional materials in time
7. Does not observe rules and regulations which affect his teaching job
8. Fails to use the four steps in teaching
9. Lectures too much
10. Demonstrates too little
11. Does not use a method of questioning which requires all students to think (participate in) the answer
12. Caters to brighter students but neglects the duller ones
13. Does not arrange students in the class or shop in an effective way
14. Fails to control his temper in dealing with students
15. Does not teach the lesson as planned
16. Does not assign home work
17. Fails to check up on the home work assigned
18. Does not tie up last lesson with new one
19. Fails to explain new lesson before starting it
20. Does not have the learner in the shop do the learning job according to commercial standards
21. Does not properly ventilate his teaching quarters
22. Has poor class-room or shop-room discipline
23. Lacks system and order in class or shop procedures
24. Too lax in testing and grading pupils
25. Absent too much from class or shop while in session
26. Does not have class-room standards of behavior or performance and require students to meet them
27. Does not practise and require from students habits of neatness and economy in the work
28. Does not keep legible and reliable records or reports
29. Fails to keep up to date on his industrial or his teaching job

to illustrate, that an instructor "falls down" on point No. 8 above—fails to use the four steps in teaching. This failure may be due to any one of a wide range of reasons such as these: He may not know the four steps; he may not understand them; he may not know how to use them in his subject; he may not have the ability to arrange his lesson material around these steps; he may think they are too much trouble; he may not accept them as sound; he may think he is using them correctly when he is not. Obviously, any efficient plan for helping him in the use of these four steps as a teaching method should be based on the real cause among all such possible ones. Every item in the chart is subject to precisely the same sort of profitable analysis.

Trouble-shooting poor results to find causes.—The efficiency of the work of any instructor cannot be measured solely by the visible way he meets inside his class-room or shop room the standards and requirements of the school for good teaching. That is the inside way of determining his needs and helping him. The other or outside way, in which his strength or weakness is indicated, is by the results of his teaching. When these are good, there is no need to do anything more than to commend his work. When they are poor, they are evidence of the fact that something is wrong. In the effort to improve results, the director must start with the trouble and work back to the cause. If that cause is some weakness or shortcoming of the instructor, the director is then in a position to help him so as to remove the cause and improve the results. The problem is very similar to that of a diagnosing physician whose patient comes to him with symptoms which must be traced back to a specific cause or causes before any remedy can be attempted.

Indications of poor results. If his school is to be measured by the results, then the director as a trouble-shooter must be keenly alert to all symptoms which seem to indicate that it is not "delivering the goods." Some of the symptoms of this are shown in the chart on page 198.

Tracing symptoms to possible causes. This is the first step in trouble-shooting poor results. When any given poor result is apparent, the director recognizes that it demands attention. So,

CHART XXV
A LIST OF COMMON INDICATIONS OF POOR RESULTS IN AN EVENING INDUSTRIAL SCHOOL

- | | |
|--|---|
| 1. Rapid drop-off in attendance | 13. Members of the class are "knocking" the course |
| 2. Too many students fail in the course | 14. Members of the class are "knocking" the instructor |
| 3. Growing tardiness of students in the class | 15. Too few students return from year to year after finishing the course in order to complete a general course |
| 4. Students leave before close of class | 16. The trade or occupations for which the course is designed to give helpful training do not regard it as "any good" |
| 5. Too many students cut the class | 17. Trade-union hostile to the course |
| 6. Too many students "soldier" on the job | 18. Employers' association hostile to the course |
| 7. Increasing number of students checking out before close of course | 19. The fact that a workman has taken the course is not regarded by the trade as a real promotional asset |
| 8. Progress of students too slow in the work | 20. Difficult to induce first-class workmen to become instructors |
| 9. Lack of interest and attention of students | 21. Large turnover in the staff of instructors |
| 10. Students on checking out express general dissatisfaction with the course or the instructor | |
| 11. Too many students fail to signify intention of re-turning for additional courses | |
| 12. Registration of students has dropped rapidly from year to year | |

either mentally or on paper, he proceeds to list the possible causes for the condition and to check these causes against the poor result. This means a knowledge of all possible causes such as is shown in the chart on page 200 in which the rapid drop-off in the attendance of students on a certain unit course is used as an illustration.

Checking possible causes to determine the real place to strike. If the director wants to do a good job in improving the results, he must find the real cause lying back of the surface or ostensible reason for the unsatisfactory situation. Suppose, in the foregoing chart, that he has determined that the real reason for the rapid drop-off in attendance is the failure of students to get what they expect to get. He cannot stop here, because there may be any one or more of a number of causes which have led to this failure. His next step, therefore, is to list mentally or on paper all such causes and check them one by one until he finds the one to which he can say, "Thou art the man." This is illustrated by the chart on page 201.

"Spotting" the real cause. In the analysis given above, it would be possible by the method suggested in the chart to locate finally the cause for poor attendance upon a course, in any one or more of the ten possible causes given in Chart XXVII. It might turn out, for example, that the instructor was not teaching the course as planned or that the students had not been properly selected for the course or that the content of the course did not meet real trade demands. Having "spotted" the true cause, whatever it proved to be, the director would be in a position to plan for removing it so that, thereafter, students would get what they wanted. The proof of this would be that there was no longer the disturbing drop in attendance. The chart on page 202 illustrates the process gone through in the last three charts and provides a convenient box-head analysis for any one or more symptoms of poor results. No attempt has been made to fill out the corresponding analyses in the second and third columns.

CHART XXVI

ANALYZING POSSIBLE CAUSES FOR RAPID DROP-OFF IN THE ATTENDANCE ON A UNIT COURSE

- | | |
|--|--|
| 1. Students not getting what they expected to get | 13. Lack of suitable lesson material |
| 2. Instruction too elementary | 14. Instructor treats students as juveniles and not as adults |
| 3. Instruction too advanced | 15. Discipline too rigid |
| 4. Lack of efficient teaching equipment | 16. Discipline too lax |
| 5. Instructor's teaching not clear | 17. Not enough individual instruction |
| 6. Instructor does not use proper methods of teaching | 18. Instructor fails to meet individual needs of workers |
| 7. Instructor does not know his subject | 19. Instructor discourages students by too much criticism |
| 8. Bad physical conditions in class-room or shop room | 20. Instructor fails to commend good work and progress of student |
| 9. Poor personality of instructor | 21. Instructor plays favorites |
| 10. Instructor too quick-tempered | 22. Duties of regular employment of students interfere with attendance |
| 11. Instructor does not recognize learning difficulties of workers | |
| 12. Lack of system in handling students | |

CHART XXVII

CHECKING POSSIBLE CAUSES FOR THE FAILURE OF PUPILS IN A UNIT COURSE TO GET WHAT THEY EXPECTED

1. Check course to find whether content squares with advertising
2. Check course to find whether content meets real demands of trade or occupation followed by group enrolled for the work
3. Check employments of students against the objective of the course
4. Check instructor to find whether he is teaching the course as planned
5. Find out what students really expected to get
6. Check students against the announced entrance requirements for the course
7. Check with the instructor the abilities of the students to profit by the work
8. In case of inadvisable admission of students to course, check the application to find out who made the mistake
9. Check with the instructor to determine the interest and attitude of withdrawing students
10. Check character of work done by withdrawing students

CHART XXVIII

CHECKING SHEET FOR ANALYZING CAUSES OF POOR RESULTS OF A
UNIT COURSE

<i>Poor results (symptoms of)</i>	<i>Possible causes for poor results</i>	<i>Real cause or causes</i>
1. Rapid drop-off in attendance 2. Too many students fail in the course 3. Growing tardiness of students in the class 4. Students leave before close of class 21. Large turnover in the staff of instructors		

In practice, of course, few if any directors will always go through the detailed steps of the analyses illustrated in the foregoing charts by which poor results or bad practices are traced to the real cause. Any efficient director, however, does go through mentally, at least, some such process. It is believed that the foregoing discussion will be helpful to all directors. The charts and the accompanying discussion provide a ready reference to usable information; every director, in our opinion, would profit greatly by going through some such analysis in a thoroughgoing manner at least once; and he will find the method particularly valuable when he faces a knotty problem which involves in any way the efficiency of instruction.

Planning the Improvement of Instructors

After the real cause of any trouble or weakness has been definitely determined, the director has a responsibility for remedying it whenever it affects in any recognized way the efficiency of the course or the school. There are three steps he must take to improve the work of an instructor: he must (1) make a plan for doing this; (2) put over his plan; and (3) check up the results to find whether it has remedied the trouble by removing the cause.

When any one plans, he sets up a scheme for the more systematic control of his own actions or those of his subordinates or both. He may do this in order to remedy troubles that have already happened or in order to prevent troubles from happening. In improving instructors, the evening school director does both. Through the first, he stops further and greater bad results; through the second, he anticipates difficulties by controlling conditions so that they do not come to pass.

Steps in planning.—In improving an instructor by planning the removal of any specific weakness, the director, having found the cause, must take several steps in his planning. He must either mentally or on paper catalogue the possible remedies for this cause; check each remedy against the cause; find what remedy or remedies apply; and set up a scheme for putting over this remedy. For example: There may be a dozen methods of improving the work of an instructor who has fallen down because he does not use proper methods of teaching. There is only one plan, however, which fits the particular case in view of all the conditions, including all such things as the temperament of the instructor, the way he learns, and the way he must be handled.

In the next chapter, the process of planning in connection with the evening school is discussed at length. Since this process applies just as well to the troubles of instructors as to all other matters, the reader by referring to that chapter will readily see the application of its suggestions, in planning a remedy for any weakness in the teaching staff.

The director checks himself.—Thus far, nothing has been said about the necessity that the director should also detect and remedy his own shortcomings. One way he can do this is to go through a process of self-analysis when he faces such a question as this one: "Instructor A does not use proper methods of teaching. What shall I do about it?" If he does this, he will first ask himself all such searching questions as those given below. When he has done this, he is in a position to make his plan cover not only what the instructor must be helped to do but what the director must do better than before. These self-searching questions include all such matters as the following:

1. Has the instructor ever been instructed regarding proper methods of teaching?
2. Has he ever seen these methods used?
3. Did I use proper methods of teaching in my teacher-training work?
4. Did I use them in my personal dealings with him?
5. Was he properly instructed in these methods?
6. Was he properly checked up to find whether he understood these methods and their use?
7. Has he been checked up in his ability to use these methods in his own subject?
8. Have I neglected to supervise him properly?
9. How much am I to blame for his failure?
10. What can I do to repair the damage for which I am responsible?
11. What can I do to avoid being to blame again for any of his shortcomings?
12. If it is not my fault, where does the trouble lie?

Planning to prevent the shortcomings of instructors.—Obviously, it is always far better to prevent an instructor from doing a poor job than to let him do a poor job and seek to help him afterward. The planning of a director regarding an instructor which counts most is usually the constructive steps he takes to anticipate and correct weaknesses or to discover and correct them early. Examples of this kind of planning are furnished in abundance by the discussion in the foregoing part of this chapter of all such matters as the pretraining of instructors; help in homeopathic doses; meeting the common needs of instructors, a code on common mistakes in teaching; trouble-shooting visible weaknesses; and trouble-shooting results to find invisible causes.

There is no such thing, however, as a perfect instructor nor one who cannot be improved in the performance of the teaching job by supervision—teacher-training, if you please—in service. Preventive measures will operate to reduce the amount or degree of the shortcomings of the instructor, but will never take the place of elbow-to-elbow contact of director and instructor on the job. Eternal vigilance and patient labor with a teaching force are “the

indispensable ingredients of efficient instruction that delivers the goods." Indeed, in the truest sense this elbow-to-elbow work is really preventive planning, because it detects and corrects trouble in the beginning stages and attacks its cause at once. This kind of planning is well illustrated by two checking devices used by a certain evening school:

Checking the instructor.—In order to "spot" trouble and set on foot its correction, the director sends the following signed slip (page 206) to the instructor, the crosses indicating the points to which the latter should give additional attention. This is usually followed by a visit of the instructor to the director if the former has any explanation to make or fails to see the reason for the criticism or wants help to meet it. The two men are then on their way in a team-play arrangement.

Commending as well as criticizing.—Another trick used by the same school is what is called an instructor supervision report, which is represented in the chart below. A copy of this with no entries is furnished every instructor. He is asked to check his own estimate of himself on each of the items and is told that from time to time the director will, after visiting his class, send him a copy of the same slip with comments. It will be noted that this report provides for three things: commendation as well as criticism and explanatory remarks. In practice this report has proven highly successful in securing the interest of instructors and close relations with the director in the improvement of instruction.

CHART XXIX

SUPERVISOR'S REPORT TO AN INSTRUCTOR ON ITEMS IN HIS TEACHING
REQUIRING ATTENTION

SUPERVISOR'S REPORT

.....Class work

Date.....

Name of instructor

It is suggested that additional attention is given to items checked
below:

- ☐ The question and answer method.
- ☐ Not permitting volunteer answers.
- ☐ Object of lesson and teaching points on the board.
- ☐ Physical condition of room.
- ☐ Mechanical procedure in conducting classes.
- ☐ The four steps in a lesson.
- ☐ Seating arrangement of students.
- ☐ Improvement in English.
- ☒ Use of demonstration material.
- ☐ Strict observance of schedule.
- ☐ "Sticking" to the lesson.
- ☐ Starting promptly.
- ☐ Work of students at the blackboard.
- ☐ Discipline.
- ☐ Standing when conducting classes.
- ☒ More participation on the part of the students.

Remarks

.....

If there is any question in your mind about the items checked
above, kindly feel free to discuss them with me.

Signed

CHART XXX

INSTRUCTOR SUPERVISION REPORT

THE WILLIAM HOOD DUNWOODY INDUSTRIAL INSTITUTE

INSTRUCTOR SUPERVISION REPORT

To.....Date.....

This report of supervision is passed to you as a check on your work of the
date indicated above. The supervision and improvement of instructors is a

difficult task, and this method of checking and commenting on your work is used as a brief, simple, and direct means of bringing about general improvement in our work.

From

+ indicates good — indicates unfavorable O see remarks	
Instructional Conditions:	Physical and General Conditions:
Promptness in starting class	Light
Object of lesson on board	Heat
Lesson plan in use	Ventilation
Instructing on object of lesson	Arrangement of class-room equipment
Models in use	Arrangement of shop equipment
Demonstration equipment in use	Economical use of supplies
Illustrations in use	Economical use of equipment
Method of questioning	Neatness of machines
Questioning well distributed among students	Neatness of floor
Job sheets in use	Neatness of blackboards
Lesson sheets in use	General condition of shop
Student attention	General condition of class-room
Student interest	Display material (samples)
Student progress	
Student discipline	Coöperation:
Student arrangement in class	Enrolment procedure followed
Student participation	Roll-call records complete
Observance of (recess hours) (class hours)	Instructors' rules and regulations followed
Home study assignments	Reports furnished as requested
Method of conducting examinations	Holidays and vacations announced to students
Method of keeping student grades	Requisitions and written orders complete
Helping all students in shop	Evening school register information
Stunts to keep up enthusiasm of students	Daily return of roll-call cards
Lesson material revised and kept up to date	
Preparation of special information sheets covering new developments in industry	Remarks: (See other side.)

NOTE.—This report is set up here in double columns for convenience only. In practice the report is printed in single-column form.

Keeping the instructor up to date with regard to his trade.—
It must be remembered that as long as the instructor teaches, he

is the main source of information regarding the trade he teaches. As he falls behind, so does the course, which needs to be kept constantly abreast of new inventions, processes, and policies. To some extent, students serve as a spur by asking questions about new developments in the trade or occupation, but this is not enough. A very important part of training the instructor is to see to it that he reads current trade journals, and is stimulated to read new books on his trade. One effective test as to the extent to which he keeps abreast of changing skill or knowledge is secured by checking up his lesson plans. Another is a yearly report furnished by each instructor on new developments and changes in his line of work. Most of this is merely shrewd planning to control the trade competency of the instructor so as to insure the functioning value of his course.

In this and the preceding chapter, we have endeavored to cover the major problems involved in the training of instructors before and after they enter the teaching service. In fact, we have tried to crowd into two chapters the discussion of a subject the adequate treatment of which would require an entire book. We must rest content with a hope that we have at least given some consideration to the main principles and the main questions involved in this most important of all matters connected with an evening school. Having secured a proper building, proper courses of instruction, and proper instructors, the next question is, How shall the school use these and other devices to secure efficient instruction? This leads us to the next chapter on that important subject.

QUESTIONS

1. Arrange the twelve mistakes in teaching given in Chart XXIII in the descending order of the frequency with which they occur among evening school instructors. Rearrange them in the descending order of their importance from the standpoint of efficient instruction.
2. Arrange in the descending order of their importance or potency the twenty-two possible reasons for rapid drop-off in the attendance on a unit course listed in Chart XXVI.
3. How would the functioning value of the training of instructors in service, assuming competent supervision of such training, compare with the functioning value of the preliminary training of instructors described in Chapter XIV? Give reasons for your answer.

4. Assuming the functioning value of efficient training in service to be at least equal to efficient preliminary training, should not State Boards of Vocational Education inspect and approve the former just as they do the latter and should not the former be accepted as a substitute for the latter in meeting requirements in teacher-training?
5. Assuming the ability on the part of State and local officials to rate the real efficiency in teaching of an instructor by his performance on the teaching job, why not, by inspecting each instructor's performance carefully, determine those who need and those who do not require additional teacher-training and certificate them accordingly?

CHAPTER XVI

EFFICIENT INSTRUCTION

Every evening school official will profit greatly by thinking about the school as a business enterprise, for that, as has already been shown, is precisely what it is or should be. Like any other business, it expends a given amount of money to get results. Like any other business, its real efficiency is measured by these results and nothing else. As with any other business, these results are of two kinds: the output produced in trained students and the cost of producing this output. If the school produces good results in the training of its students, but at a wasteful cost, it is inefficient. If it makes a record with regard to costs at the expense of service, it is also insufficient. Engineers express these principles by this formula:

$$E = \frac{r}{t + e + m}$$

In the engineering formula for efficiency, E = efficiency; r = results; t = time; e = effort; and m = material. What the formula means is that the efficiency of any enterprise varies directly with the results. When results are improved, efficiency rises; when results are poorer, efficiency has fallen correspondingly. On the other hand, the efficiency of the enterprise, whatever it may be, varies inversely with the time, effort, and money used to produce the results. Efficiency can be increased either by increasing results or by decreasing the cost in time, effort, and money: by maintaining results at a satisfactory level while decreasing the cost; by increasing results without increasing costs; or by increasing the cost so as to secure so much better results that the value of the fraction is increased. The efficiency of evening school instruction, therefore, can be increased by doing a better job of training for the same money or as good a job with less money, or by spending the money necessary to produce results more important than the additional cost.

Applying the formula to the evening school.—It will not be possible here to apply in detail these principles of efficiency to every phase of the problem of putting over a given unit course of instruction; hence a few illustrations must serve:

If an instructor carries the instruction in his subject to the point where it gives the student a productive ability to secure employment, hold employment, or win promotion, the course is efficient on the results side. Wherever the training is not carried to that point, the course is inefficient in its results. If the instruction gives students skill and knowledge for which there is no demand and which therefore they cannot use, the results are poor because it is a waste of money to fit people for imaginary demands. Results in increased wage-earning ability alone justify the existence of any given unit course.

Whenever training is given to those who need it, want it, and can profit by it, the course is efficient on the cost side, because time, effort, and material are always saved when learners are interested and capable of learning. Proper learning conditions conserve both instructor and learner. If the training is given on actual jobs and not through exercises or imitation jobs, time, effort, and material are saved because they have been used to inculcate the real habits which students require for their employments and are not wasted in the futile effort to establish needed habits by practising something else. Proper learning methods conserve both instructor and learner. When a school declares a definite aim for a course, but fails to teach the skill and knowledge required to give expected results, the course again fails. Functioning subject-matter also conserves teacher and learner.

All this is but saying in other words that the evening school director has the responsibility and opportunity of improving all the procedures of his school so that better results are secured in service and cost. He discharges this responsibility efficiently when he sets up a definite trade aim or standard of output for each unit course of instruction and creates all the conditions of training which are necessary in order to reach this standard at the least cost in time and effort and the least cost in money commensurate with desired results. At once two questions suggest themselves

as these: What constitutes a proper trade aim for a course in an evening industrial school; and what are the conditions of training that must be set up in order to realize this aim in the easiest, most effective, and, in the end, least costly way?

What should be the aim of a unit course in an evening industrial school?—It should be stated in terms of a trade demand or standard and should be simple, concrete, and direct. In *Vocational Education in a Democracy*¹ there are given in the "Sixteen Principles of Democracy" four principles which describe the kind of stated objective (aim) for a course which will produce efficient results in proportion as the objective is put over successfully:

1. The interests and abilities of the trainee are capitalized to the highest possible degree by the course.
2. Right habits of doing and thinking to the degree necessary for employment are fixed by the course.
3. The trainee is given a productive ability with which he can hold employment or win promotion by the course.
4. The trainee is given skill or knowledge which meets the market demands of employment by the course.
5. All this can be summarized in the statement that efficient results are accomplished in any unit course which sets up as its objective some definite asset in skill or knowledge required for the trade or occupation, and puts over this objective effectively.

What constitute efficient working conditions (requirements)?—After about two decades of experience, those engaged in the administration of the evening extension industrial school are in a position to set down those policies and procedures which have proven successful as efficiency devices—devices necessary to secure better results in training at a minimum cost in time, energy, and money. In *Vocational Education in a Democracy*,² a number of the most important of these efficiency devices are listed and explained. These are reproduced in the following chart. The chapter references direct the reader to other chapters in this present book where these devices are discussed:

¹ C. A. Prosser and C. R. Allen (The Century Co., 1925), pp. 211–212.

² Pp. 368–381.

CHART XXXI

SPECIAL EFFICIENCY DEVICES IN INSTRUCTION IN THE EVENING
INDUSTRIAL SCHOOL*Special efficiency devices**References to other chapters*

- | | |
|--|----------------------|
| 1. Selected groups for instruction | Chaps. IV, XX, XXVI |
| 2. Efficient methods of selecting groups | Chaps. XVI, XX |
| 3. Functioning subject-matter | Chaps. II, VI, IX, X |
| 4. Exclusion of non-functioning subject-matter | Chaps. II, IX, X, XI |
| 5. Occupationally trained instructors | Chap. XII |
| 6. Individual instruction | Chap. XVII |
| 7. Labor-saving devices in training | Chaps. XVI, XVII |
| 8. Use of performance tests | Chap. XVI |
| 9. The use of efficient teaching technique | Chaps. XVI, XVII |
| 10. Timeliness of instruction | Chap. XVII |
| 11. Individual progression or promotion | Chap. XVII |
| 12. Good personnel management of learners | Chaps. IV, XVI, XVII |
| 13. Recognition of biological stages in learners | Chap. IV |
| 14. Training on real jobs | Chap. XVI |
| 15. Effective instructional order | Chap. XVII |
| 16. Recognition of group characteristics in learners | Chap. IV |
| 17. Training in the occupational environment | Chap. XVI |
| 18. Adequate repetitive training | Chap. XVII |
| 19. Observance of occupational standards | Chap. XVI |
| 20. Utilization of best ways for giving manipulative skill, technical knowledge, job intelligence, and auxiliary information | Chap. XVII |

Comment. For convenience in discussion, all the foregoing efficiency devices in an evening industrial school can be grouped under these heads: the selection and handling of student workmen; making the instruction real; and using efficient teaching methods and procedures.

§ 1

The Selection and Handling of Student Workmen

Under this head we include the following special efficiency devices in the foregoing chart, the numbers used corresponding to those used in that chart: selected group for instruction (1); efficient methods of selecting groups (2); good personnel management of adult learners (12); recognition of biological stages in learners (13); recognition of group characteristics in learners (16).

Selected groups for instruction.—In the consideration of "Functioning Subject-Matter" (Chapter IX), "Courses of Study" (Chapter X), and "The Evening School Student" (Chapter IV), the necessity of selecting the group of learners to be instructed and the principles on which that selection should be based were thoroughly discussed. As a summary these statements have proven themselves to be sound: Instruction will be efficient in proportion as the course meets the real needs of the learner; as it is usable by the learner; as he has the previous experience necessary to profit by it; and as he has the ability to understand and use what is taught.

Efficient methods of selecting groups.—Among the special devices for securing the proper selection of learners for any course of instruction, these have proven to be effective (see also Chapter XIX, "Local Management and Supervision," and Chapter XX, "Student Records, Reports, and Forms"):

1. Confine membership of group taught to those who are at least already engaged in the line of employment for which the course provides supplementary skill and knowledge.
2. Make each applicant an individual case of advisement and assignment.
3. Have him advised by a competent instructor experienced both in the applicant's own line of employment and in the aims, standards, policies, and work of the school.
4. Give at least as much attention to the problem of adjusting old students to new courses as to that of adjusting new students.
5. Take all the time and trouble necessary to understand and treat the case of each applicant.
6. Provide a week of preliminary registration for this service. See Chapter XIX and Chapter XX.
7. Try in every possible way to induce applicants throughout the evening school year to come to the school office in advance of the unit course desired and "talk it all over."

Handling student workmen.—Probably more attention has been given in this book to the characteristics of the student workman as an adult learner than to any other subject. In Chapter

IV, "The Evening School Student," the reader will find an analysis of these characteristics and the corresponding policies and procedures to which they point; hence it would be almost superfluous to discuss again good personnel management of learners (12); recognition of biological stages in learners (13); or recognition of group characteristics of learners (16). The numbers following these items refer to corresponding efficiency devices in Chart XXXI above. As a summary, these statements would seem to be sound:

1. It is not possible, nor is it the business of the evening industrial school, to "reform" its students as to their use of English, their morals, or their manners, except as these interfere with the efficiency of instruction, or as to their political, economic, social, or religious beliefs.
2. All the special machinery, policies, and procedures used in the full-time school for adolescents should be abandoned and new ones adopted suitable to grown people.
3. Rules and regulations should be reduced to the absolute minimum necessary for the orderly discharge of the business of the school.
4. The fundamental rule as to conduct on which the school is operated should be that any action by any student is a violation of the spirit of the school and the public opinion of the group which interferes with the right of fellow-students, as customers, to receive the full benefit of the instruction.
5. The fundamental rule as to procedure should be that all dealings between the instructor and the learner are conducted on a man-to-man and not a man-to-child basis.
6. The fundamental device for saving time, effort, and money in the handling of students should be, as with all other real learning, the getting and holding of the real interest of the learner. When this is done successfully, there is little need for any rules and regulations, and teaching with faulty technique succeeds better than faultless technique and indifferent learners or worse. It will not be possible to catalogue here the special devices for securing the real interest of student workmen. Basic among them, however are these:

- a. Give learners what they need.
 - b. Select and group learners according to their needs and ability to profit by the instruction.
 - c. Have each lesson of every unit course give a specific asset in skill or knowledge.
 - d. Teach learners individually as well as in groups by helping each student with his special difficulties and needs.
 - e. Use efficient teaching technique in putting over the lesson. (See § 3 of this chapter on the using of efficient teaching methods and procedures.)
 - f. Use efficient technique in the personnel management of student workmen. (See paragraph 7 below.)
7. The fundamental policy in the personnel management of learners should be that the school exists for the benefit of the learner as a customer, and not the learner for the benefit or convenience of the school. Whatever service can be rendered to the individual learner without interfering with the right to service of fellow-students, that service should be rendered in some way. It will obviously not be possible to do more than point out a few basic principles and policies which flow out of this conception of the school as a service-station to student customers:
- a. It is just as necessary that the instructor should be sensitive to, understand, and adjust his handling of each student to individual needs, weaknesses, and special handicaps and peculiarities as it is for a shop foreman to do the same thing. Incidentally, this is precisely what every successful business does in the handling of customers.
 - b. The instructor should have a sincere and genuine interest in every student and a pride in doing a workman-like job, not only when he teaches a group of learners, but particularly when he handles and helps the most difficult case.
 - c. As the business of the evening industrial school is to serve employed workmen, it should provide every pos-

sible facility for helping every workman who applies, such as "lame duck" classes, individual instruction, special advisement, and the open door of the director to every man wanting an audience.

- d. After all, the successful tactics of the instructor in dealing with a learner are no different from those employed by a modern foreman in breaking in a learner on a new job. These tactics are made up of all such matters as standards, rules, requirements, help, patience, fair dealing, straight talk, encouragement whenever possible, frank criticism when needed, and a careful regard for the self-respect of the workman.

§ 2

Making the Instruction Real

Under this head we include the following special efficiency devices listed with corresponding numbers in Chart XXXI above: functioning subject-matter (3); exclusion of non-functioning subject-matter (4); occupationally trained instructors (5); training on real jobs (14); training in the occupational environment (17); and observance of occupational standards (19). The first two items have already been sufficiently covered in Chapter IX, "Functioning Subject-Matter," and the third item by Chapter XII, "Qualifications of Instructors."

Training on real jobs.—Most evening industrial school instruction is class-room and not school shop work and probably always will be. Most workmen attend evening school to get what they cannot get in their daily work, and that is systematic training in the use of the facts and ideas which apply to their employment or line of employment. It is much easier for the evening school to provide class training on real jobs than shop work. This may seem a queer statement to some until it is pointed out that the class can, if it will, always give instruction regarding the real problems which workers must solve on real commercial jobs. Any school gives class training in real jobs which confines the teaching content of the course to functioning subject-matter;

which excludes all non-functioning subject-matter; and which employs occupationally trained instructors to apply this subject-matter to the demands which their employments make on his learners.

Making a commercial product. When it comes to evening school shop work, however, the problem is much more complicated. It should be remembered that the typical evening school course in shop work calls for about 100 hours of instruction distributed over twenty-five weeks, four hours per week. Usually those four hours of shop practice are distributed over two nights of two hours each, although for shop courses one night of four hours is far preferable from every standpoint. It is clear that, under these conditions, no evening school can maintain, on any extensive scale at least, the production of goods for sale. At the same time, it is undoubtedly true that every effort should be made to train learners as far as possible through shop practice in the making of a commercial product.

Where an evening school is operated in connection with a day-school, the opportunities to do this are much greater. One evening school, to illustrate, disposes of the output of bread and sweet goods from its baking courses by adding them to the larger volume of the same kind of goods produced and sold by the day-school. It also secures an assignment of machine-shop operations required in the processing of work for which the day-school is primarily responsible, and carries on in its auto shop work repair jobs on cars which are being overhauled by the day-school. Two-color jobs in presswork are frequently completed by a coöperation between day and evening students in presswork. Small tools and dies are made for the use of the day-school by the students in the evening courses in toolmaking and die-making. In addition, every opportunity is seized to produce and market directly any article which affords needed practice. In 1928-1929, for example, one customer paid more than four hundred dollars for one order of dies filled by the evening school. These are merely a few illustrations of the way in which a large evening school can use the day-school work as well as the day-school facilities to provide practice on real commercial jobs.

A substitute for commercial work is often discovered in having the students produce articles for themselves. For a very nominal price the raw stock is furnished them which when processed remains their own property. Evening students take more interest and pride in making something to take home than in making something for the school. This scheme lends itself particularly well to those shops where a higher degree of manipulative skill is required by the individual workman, such as machine-shop, sheet-metal, wood-turning, pattern-making, wood-carving, and drafting.

From the training standpoint, it is essential that the kind of article produced shall be approved in advance by the instructor as providing the kind of practice which the course requires and that it shall meet the standard of workmanship which he requires. A word of caution here is necessary. Many a shop course in evening school has failed eventually because the instructor permitted students to produce articles for personal use or display which did not provide the right kind of practice in the right kind of operations. As an example, a student brings his automobile to the school for overhauling. He is a faithful student until his work is completed, whereupon he leaves the school. His instruction was from the standpoint of personal production and not from that of real self-improvement.

Still another plan is to have learners produce useful articles to be retained by the school as a permanent exhibit of workmanship of various grades, in which case, of course, the school and not the learner should pay the cost of the raw stock.

Still another substitute for commercial work is found in what might be called real practice on a reduced scale. It is impossible, to illustrate, for the evening school to give workmen from the carpenter trade commercial practice in stair-building or roof-framing, as the life-size structures cannot be housed in the shop. One school, therefore, resorts to the trick of planning and building small stairways and planning and framing small roofs, which are miniature reproductions or replicas of real construction. The object of the unit courses in these subjects is to give carpenters experience they are not getting in their daily work in laying out work, taking measurements, cutting lumber to fit, erecting, and

checking up the results of their efforts. Practice in all these operations is provided in a reduced scale of construction.

This arrangement does not provide the skill (habits of thinking and doing) for novices in the day-school as it should, but it serves as well and in our opinion better for the training of experienced men in carpentry than any attempt by the evening school students to build somewhere full-sized stairs and roofs. They are familiar with tools and processes and have seen stairs built and roofs framed. They want to learn how such work is laid out, figured, and carried out. Under the controlled and more quickly executed practice within the school shop in these operations on a small but to them real project, the training is more efficient. This same trick, if such it may be called, can also be used successfully in such trades as sheet-metal, baking in small batches, interior decorating, pattern-making, wood-carving, and paper-hanging in small rooms or booths.

Work on an operation basis. After all such expedients have been used, however, the fact remains that most evening school shop practice must be done on an operation instead of a commercial production basis. This would be fatal in a preparatory trade school, but is not in the evening school, provided these operations give the necessary practice required for the course; they are carried on in the way they are performed in industry; and the student is required to meet standards of workmanship. It is impracticable, to illustrate, to bring into an evening industrial school the structures and machines on which commercial welding is done. Selected scrap material—wrought-iron and steel, cast-iron and steel, aluminum, brass, and piping of various metals—provide the right kind of practice just as well as new stock. After all, the real project is the performance of the welding operation according to standards. When this is done, the carry-over by the student of skill and knowledge to the welder's daily job is high. At the same time, it should be recognized that the evening school must rely on further experience in the business for his adjustment to the varying problems which are presented by an infinite variety of materials, articles, and conditions.

As a general rule, the greater the previous experience of the

student workman in his line, the better the results which are secured by the use of real operations and real projects as a substitute for a commercial product. For almost every trade and industry the evening school must make some use of the operation or project. Among the illustrations of this use, the following are purely suggestive: color work in job-press operations; setting practice copy by hand composition or on the linotype; experimental baking; mixing colors for painters; laying out circuits and measuring resistance and the like in electrical work and also in auto electric work; copying house plans to a change in scale, in drafting courses for carpenters; and clay-modeling for jewelry designers.

Training in occupational environment.—When a workman attends an evening course of instruction in his line, he brings to the class or shop an understanding of the real occupational environment of his daily employment. For this reason some one has aptly said that “he is already half prepared to receive instruction, since training that gets anywhere with him must be built on top of his previous experience.” While this is true, every consideration requires that this occupational environment should be preserved in the school as far as conditions permit. Among the things that the evening school can do to accomplish this are the following: use functioning subject-matter; use occupationally trained instructors; apply skill and knowledge to real trade problems and jobs; make a constant tie-up of facts and ideas to the student’s previous experience; train in thinking about and doing things in the way they are done on commercial jobs; and observe trade standards in the performance of manipulative and mental work. All these matters have already been discussed at various points.

It may be well, however, to point out here several illustrations of what is meant by an occupational environment within the school. In shop work, student workmen should dress precisely as in the trade itself—white duck for bakers; aprons for printers; aprons or jackets for machinists, sheet-metal workers, and auto mechanics; rubber aprons for battery repair men; and aprons and gloves for welders. Trade equipment instead of “make-believe” or miniature machines and tools should, of course, be used, and a

wide variety of such tools and machines, instead of a uniform equipment such as few if any commercial shops ever use. In class and shop, the relations of the instructor to his students and of students to one another should be, as far as possible, like those of a foreman to workmen and of workmen to each other. Shop terms and phraseology, shop standards, shop discipline, shop policies—all these tend to bring into the school the occupational environment in which student workmen feel more at home and from which they gain a greater degree of carry-over to the real thing.

Observance of occupational standards.—All real training is training in habits of thinking or doing. All habits of skill in thinking or in doing are gained by practising them against a standard. Perhaps the clearest illustration of this is the effort of a golf-player to better his own score. This being true, the instructor must establish standards for every operation. Obviously, these standards, while fixed in a way, must vary as between the first operations performed by a student and later ones. In other words, standards must progressively fit the case. In machine-shop practice, the learner should at the start be required to work within a tolerance, let us say of $1/64$ of an inch, but later he should be expected to work within $1/1,000$ of an inch. His first job would be one which in the commercial world would admit of a tolerance of $1/64$ and his last job one which demanded a tolerance within $1/1,000$ of an inch or possibly less.

In the class-room, the standard should be the way in which the trade thinks or does. All figuring, for example, should be done as the trade figures. Not only should the trade formulas be employed, but the measurements used should be actual trade measurements and stated in trade terms. Formulas should be solved as the trade solves them. If it uses common fractions, then only common fractions should be used; or if decimals, then decimals should be employed in the formula. If by the custom of the trade any short cuts in figuring are made, then they should be made by the school. All trade discounts, trade allowances for shrinkage, losses, overhead, and profits, trade tolerances, and trade adjustments should be computed in the same way and with the use of the same coefficients as in the trade itself. For these reasons,

if for no other, the class work of an evening industrial school can only be handled efficiently by a competent workman.

§ 3

Using Efficient Teaching Methods and Procedures

Under this head we include the following special efficiency devices in Chart XXXI, the numbers used corresponding to those for the device in that chart: individual instruction (6); labor-saving devices in training (7); use of performance tests (8); the use of efficient teaching technique (9); timeliness of instruction (10); individual progression or promotion (11); effective instructional order (15); and adequate repetitive training (18); and utilization of best ways for giving manipulative skill, technical knowledge, job intelligence, and auxiliary information (20). Because of the length of the present chapter, these devices will be considered in the next chapter.

QUESTIONS

1. This chapter has dealt with methods of securing efficiency in the training of student workmen, with ways which, it is believed, will secure results in the greater ability of students to use the skill and knowledge they have been taught. Distinguish between these methods and *proof of efficiency*. List at least six items or matters which you would investigate to determine whether the school functioned in results.
2. Compare the special efficiency devices in instruction (Chart XXXI in this chapter) with the success factors for the evening school set forth in Chart VI of Chapter V. Why the differences between the two charts? When would you use the former and when the latter?
3. Rate the efficient methods of selecting groups of students in the evening industrial school set forth under that paragraph heading in this chapter with those of your own school or one with which you are familiar.
4. Check the policies in your evening school or one with which you are familiar against the fourteen policies for *handling student workmen* set forth in separate paragraphs under that head in this chapter. (NOTE.—Omit paragraph *d* under 7.)
5. Make a list of all the things which you think your evening school, or one with which you are familiar, can do which will make the instruction more real.

CHAPTER XVII

USING EFFICIENT TEACHING METHODS AND PROCEDURES

The last chapter discussed the need for the proper selection and handling of students and for making the training as real as possible under the given conditions. This chapter considers efficient instruction from the standpoint of the methods and procedures used by the instructor himself.

Individual instruction.—Every course in the evening industrial school should give students that help which each needs from the course. From this standpoint, the ideal evening school would be one which provided a special instructor for each learner. Obviously the cost of such a school would be prohibitive and its wastefulness would probably be inexcusable at those teaching points where group instruction saves time, effort, and money. Nevertheless, this principle seems sound to us: *The fundamental procedure of the evening industrial school should be individual instruction, and the only justification for group instruction is that it can be made an economical and satisfactory substitute for individual instruction.*

Almost every one now recognizes the soundness of this principle in the shop and drawing courses of the evening school. One outstanding characteristic of such work is the individual and not the group performance of jobs. After the best possible selection of students for a shop course has been made, they still differ widely in previous experience, native and acquired ability, aptitude for the work, interest, and industry. It is obviously impracticable for any evening school to provide sufficient equipment with which to train all students simultaneously on the same job. Moreover, the great differences between students cause them to progress at widely varying rates through the list of required jobs. As a result, at least 90 per cent of the instruction in shop work is "man to man" and not "man to group." Job instruction sheets, to illustrate, are simply an efficiency device in individual training which the instructor uses to save the time which would otherwise be spent

in giving separate oral instructions to each student when he chanced to be ready for a new assignment.

Occasionally the whole group of shop students can be thrown together to teach something "once for all." This can be done, for example, in teaching special safety precautions or in meeting the special difficulties of some lathe-operation which all must perform. In like manner, smaller groups within the total group are from time to time thrown together, instructed, and disbanded. In any well-conducted evening shop course, teaching consists of a curiously flexible combination of individual training with almost every conceivable grouping of pupils for instruction regarding common matters. This is just as true of courses in drawing or design. One acid test for the shop or drawing instructor is his resourcefulness and managerial ability in using instruction by groups to supplement personal training.

The real solution is not so clear with regard to class courses. Here group instruction is usually used too much and individual help too little. Twenty members of a group, let us say, are put through twenty lessons in twenty nights. Each night all members of the group are concerned with exactly the same lesson or, as it might be called, the same class-room job. Let us assume further that each lesson of the twenty has a distinct objective in some trade asset—in the ability to use some specific trade knowledge—and that the twenty lessons are arranged in the most effective instructional order. In essence, the real situation is no different from that of shop and drawing courses; the trouble is more hidden but essentially the same.

These twenty students differ just as widely, in general, as those in the shop, and their rate of progress—of understanding and ability to use what is taught in a lesson—differs correspondingly. When lesson No. 1 has been presented, class students range over as wide a gamut in their mastery of the lesson or class job as shop students do with regard to shop jobs. The shop student stays on any job, however, until he has completed it before being assigned to another job. In the class, on the other hand, all the students as a group are assigned class job No. 2 for the next session. As a result, some students approach the second class job fully prepared

for it because they have fully mastered the first one; some are only partly prepared for the second job because they only partly understood the first one; and some are unprepared to understand the second lesson or job because they did not "get" the first one. This is the real situation which any of us could see in almost any class, if our finite eyes could visualize conditions there as clearly as we can see them in the more concrete and visible workings of a school shop.

The only remedy for this trouble is to locate the shortcomings and special needs for help of each student and then give him that help. This is comparatively easy in the shop course where the performance of every job indicates the status of the student and where individual instruction is the recognized method for helping the individual student. It is always a difficult problem in the class course because the excessive use of group instruction tends to hide the lagging of a student and to inhibit the personal help he needs if he is to profit by the course. If the principle set forth above is correct, then group instruction fails as a substitute for individual instruction whenever it results in the failure to give the special assistance required by individual members of the group.

Admittedly a large amount of group instruction must be used in most class courses at least. Considerations of economy alone would require this, as does the informational character of much of the subject-matter. The problem is not one of abolishing group instruction. What is more needed is a keen realization of the weakness of such instruction in serving the special difficulties of the individual student, and the use, as a result, of supplementary policies and procedures for uncovering and serving the special needs of those requiring assistance. Among these policies and procedures are all such as are suggested below:

CHART XXXII

EFFICIENT POLICIES AND PROCEDURES IN CONSERVING THE INDIVIDUAL EVENING SCHOOL STUDENT

1. Spot those members of the class who constitute the slow group.
2. Give special attention in the class to the special difficulties of the lagging group in the class and of individuals within the group.

3. Require from them the extra study and home assignments necessary for them to "keep up."
4. Check up this home work to see that it is understood and done by the student.
5. Assign to the halting student special projects or jobs to be done by him in his daily employment which will either reveal his difficulties, teach him something, or give additional application of what has been taught.
6. Provide special help through "lame duck classes" for the removal of deficiencies in students which must be removed if the student is to profit by the course or courses he desires.
7. Confer outside of class hours with students in difficulty.
8. Give special help at some meeting place outside of class hours for students in difficulty (before or after class, instructor's home on some other night, Saturday afternoon, Sunday, or the like) (at the plant, central place downtown, at the school).
9. Use questions that require reasoning in which the facts and ideas taught must be used.
10. Have all students participate in the discussion.
11. Question those that do not participate.
12. Reduce the amount of ground covered by the lesson (unimportant details and too many topics).
13. Pick out and *teach* only those facts and ideas that students do not already know and which constitute trade assets of sufficient importance to justify using the time of the learner.
14. Quit peddling a mass of technical information, and help learners in thinking about and applying important facts and ideas to their past experience and to real jobs.
15. Talk less and teach more.
16. Have the instructor do less and the students do more.
17. Work with students instead of merely lecturing at them.
18. Be sure every member of the class "understands" each lesson before the next one is presented. If not, give him special treatment.
19. Quit trying to rely on the memory of students, and rely on thinking and using as the means of understanding and fixing functioning knowledge.
20. Weed out students unable to "keep up" with the work of the class by transferring them to more suitable courses.

Labor-saving devices in training.—Labor-saving devices promote the efficiency of instruction not only by reducing the time and effort expended in teaching and learning any given thing, but by improving the results of the instruction itself—improving the learner's resulting skill or understanding.

The use of visualization as a method. Workmen are accustomed to rely to a very large extent on the eye in learning things in their daily work. They are not very much given to talk or to listening to long discourses about job methods and problems. Nor are they in the habit of reading extensively about trade matters. Consequently they do not learn anything well by words alone—by *merely listening*—unless it is tied up in some very clear, concrete way with their own experience. By *listening* we mean obtaining information through the ear or through the printed page, for after all reading is only a method of obtaining information through words—through *listening with the eyes*. On the other hand, student workmen *learn* new ideas and facts very rapidly about matters with which they have had previous experience, when these are illustrated in some way by visualization—by a teaching of the mind from objects through the eye. As a matter of fact, all these statements are true of all human beings in a fact-bewildered, fact-cramming age.

“The appeal to the eye is far more efficient than to the ear, in the education of human beings, for many reasons: The eye is more rapid. Any human being, freed from the mechanics of interpreting words, responds more freely and naturally to the concrete presentation of the thing itself. Interest in what we see is usually far greater than in what we hear. Sustained attention is much easier to gain through the visualization of things than through the ear or the printed word. The effective appeal through the eye is far greater than through the ear. We forget what we hear much quicker than what we see.”¹

No evening school can go too far, and probably no evening school ever goes far enough, in the use of visualization devices. These include all such things as:

1. The real thing itself, such as, for example, in automobile engine work, the complete engine, parts of the engine and cut-away parts.
2. The use of another similar mechanism to illustrate the real thing, such as, for example, the substitution of a Ford valve-time mechanism in teaching valve-timing on a Buick.

¹ *Adult Education*, Committee Report, American Vocational Association (1927), p. 46.

3. Working models of the real thing, such as, for example, a model of the valve-timing mechanism of an automobile engine.
4. Moving-pictures of the real thing, such as, for example, a "movie" showing the valve-timing mechanism and its ordinarily concealed operations in an automobile engine.
5. Still pictures (negatives and films) of the real thing, such as, for example, a series of pictures of the valve-timing mechanism showing the progressive action of the valve.
6. Moving-pictures of progressive diagrams or drawings showing, for example, the valve-timing mechanism of an automobile engine and its ordinarily concealed operation.
7. Still pictures (slides and films) instead of No. 6 above.
8. Charts, blackboard sketches, and job and lesson sheet diagrams explaining all kinds of matters.

Probably the most effective use that an evening school can make of its expenditures for teaching facilities is for an adequate equipment of moving-picture machines, projection lanterns, films, slides, models, cut-away parts, charts, drawings, and blue-prints. Entirely aside from their teaching value under ordinary conditions, these visualization devices make it possible not only to present in a concrete way the inner workings of mechanisms not otherwise visible to the learner, but also to bring representations of things to the class-room which can in no other way be furnished. Only by the use of such devices is it possible, for example, to give Seattle students in building construction any adequate conception of a new type of construction just developed in New York City. Such equipment also reduces expenses by reducing time and effort in teaching. The flexibility in its use; the ease of preparation; the comparatively low first cost; and the permanency of such equipment justifies all reasonable expenditures to obtain it. One of the most vital features of training instructors in service is the development of initiative and resourcefulness in the use of all these visualization devices.

Other labor-saving devices cover a wide variety of helps: Scheduling shop classes for four hours instead of two hours per night is one. One set-up is made for four hours of practice; consequently

the time lost in getting ready for practice the second night is saved. Confusion is avoided and precious time is saved by all such things as the preliminary cutting and preparation of stock for jobs, so that the student may give his entire time to practice; the selecting and arranging of tools for evening school jobs, so that they may be readily found and distributed; the systematic routing in progressive order of jobs for every shop course; the systematic management and use of machines and tools, so as to have the proper machine and tools ready at the proper time for each student; and the use of shop progress charts by the instructor, keeping track of the job assignments of each student.

Job sheets conserve the time of both the shop instructor and the learner. Information lesson sheets for the class-room furnish the student a summary of the main ideas and facts to be discussed and applied in the lesson. When a student misses a lesson, these sheets provide a means whereby he can, without the repetition of the lesson by the instructor, keep step with the class. The lesson plan is made out by the instructor. It requires him to concentrate on the things he plans to teach, and provides a quick and reliable way by which he can be checked on the execution of his planning. When a textbook furnishes an adequate or superior substitute for information sheets, as it sometimes does, then it should be used instead because of its greater permanency and portability.

Use of performance tests.—This phrase is very common in the day preparatory trade-school but is seldom encountered in the evening industrial school. In the day-school, a great deal of effort is made to fit the pupil for the entrance demands of employment in a trade, and such tests are probably the best evidence of what he is able to do; hence the use of the term. In evening school, however, the directness of the unit shop course and the very specific character of the jobs used for practice make every job essentially a performance test. Seventeen jobs, let us say, are assigned in a given course in sheet-metal shop work. To receive credit for the course, a student must complete to the standard at least fourteen of them and in the judgment of the instructor reach a grade of at least 70 per cent when measured by all such factors in his performance as time required; the proper use of tools and machines; the

following of instructions; and the quality of the job as compared with the same kind of a job done in a production shop.

In the class-room, four kinds of tests are used that are essentially performance tests in the understanding use of the facts and ideas taught. One is the oral review of the previous lesson. A second is the oral quiz on the current lesson. A third is the written quiz which takes place at intervals during the course or at its close. Still a fourth is a check of the accuracy of home work.

The use of efficient teaching technique.—According to the dictionary, a man's technique in doing anything is his style of performance, his way of executing the art, whether it be playing golf, discharging a pay-roll job in a shop, or teaching school. A considerable part of the technique of an evening school instructor has to do with his class or shop management, and some of the most important "tricks" which have proven successful in this responsibility have already been set forth in Chart XXIII of Chapter XV, "Training Instructors in Service." Another important part of his technique has to do with personnel management—with the handling of student workmen—and this has already been covered in Chapter XVI, "Efficient Instruction."

No two instructors have exactly the same technique. They could not, even if they tried desperately, because every man's way of performing any job, and particularly a teaching job, is determined largely by his total personality: his temperament; his human attitude; his degree of poise; his habitual way of going at things; his human and therefore finite judgments regarding situations and individuals; his personal courage; and his energy and resourcefulness in meeting conditions. In short, his teaching technique will be controlled to a large extent by his habits of thinking, doing, and believing.

As a result, many of the characteristics of efficient technique cannot be taught. If learned at all, they must be acquired by the instructor through experience on the job, and some of them more or less unconsciously. It is possible, however, to indicate a few of these characteristics. One is the ability of the instructor at his best to adapt himself to situations. In the school shop, to illustrate, he wears shop clothes, but in the class-room he dresses

as his students dress. He carefully avoids all mannerisms which interfere either with the efficiency of his teaching or the respect and good-will of his students. He neither shouts nor talks so low or so indistinctly or so rapidly that his students cannot understand him, and he has learned to handle his voice so that it is an effective tool in teaching. He uses simple language; is clear and logical in his statements; and uses just the right illustrations and demonstrations to put over his points. He is both a member of the gang and the leader of the gang. He knows just how far to mix with his students without losing his own dignity and essential control of the situation. He combines sympathetic understanding, courtesy, tact, and a helpful attitude with frankness and firmness. Always he has an almost instinctive feel of conditions. When the group is tired, he takes a rest or gives them a "change of scenery," and he senses trouble before it happens and "rides it" instead of letting it "ride him."

Always master of both his subject and his methods, he exercises at all times a guiding influence in discussion and conference. He displays at all times the punch, snap, punctuality, and promptness which he expects his students to practise. Recognizing the vital importance of interest in learning, he practises all the tricks for getting it from every student. Knowing that learning requires participating experience by the learner, he practises all the tricks for securing this from every student. Because he realizes that the real measure of the efficiency of his teaching is the result upon his students, he measures himself not by what he has done but by what they understand and can do after he has taught them. Master of all the tricks of testing the progress of his students, he constantly checks their performance and adjusts his teaching processes accordingly.

Believing that education is habit-training, he makes himself master of this art. He starts learners in the use of some skill or knowledge, lets them run under their own power, checks their weaknesses, helps them over difficulties, sets them going again, and checks and accepts satisfactory results. Finally, as a master workman, he selects the proper tools for every teaching operation—utilizes the best ways for performing different phases of his teach-

ing job; he is master of each tool he employs, and resourceful in its use.

All the foregoing features or phases of the technique of the evening school instructor are, generally speaking, a curious blending of temperament, common sense, personal character, native ability, trade mastery, teaching experience, resourcefulness and adaptability, knowledge of teaching methods and devices, and practice in their use under competent supervision. The technique, therefore, of any instructor depends on what manner of man he is, what kind of experience he has had, and what kind of supervision he receives.

Timeliness of instruction.—It is a sound rule of teaching that the best time to learn anything is when you need it. Even after the wisest possible selection and grouping of student workmen has been made, the fact still remains that even within the restricted subject-matter of any unit course, the members of the class differ widely as to their immediate needs in their daily work—a fact which every instructor should always keep in mind. In the shop, the immediate needs of the student can be met by the individual instruction always used there. There is practically no such thing, however, as meeting 100 per cent in a class the specific needs of any group of students; but there are many things the instructor can do in this direction.

He can invite and always be open to specific questions from students about their immediate difficulties and demands. He can set aside time before the class, at recess, and at the close of the session to confer with students. He can anticipate and keep ahead of trade conditions or demands. Suppose, to illustrate, that the instructor in aviation engines is aware of pronounced changes in this mechanism which are imminent. He could greatly help every member of his class by weaving into his instruction information and direction regarding the repair and operation of the forthcoming engines. Finally, his instruction becomes timely, in the sense that it is given when students are best prepared to receive it, if all his subject-matter is arranged or presented in the most effective instructional order. This is only saying that each lesson is built up on top of the experiences of the previous lesson as one brick is laid

on top of another. Each lesson, being preparatory to, is therefore timely to, the next lesson.

Individual progression or promotion.—In the evening school shop or drawing courses, this matter takes care of itself almost automatically. Assignments are to jobs, and each student is free to advance from one required job to another as fast as he is capable. The only restriction is that he shall complete each job satisfactorily before undertaking the next one. Where he stands at the close of the course is shown by the number of jobs he has “done” and the character of his workmanship. This is just as true in the advancement of a student from any line of employment through the unit class or shop courses which the school has provided for that line. He may take one unit only or return for two or more or, being a candidate for a diploma, he may complete all the units of a general course. In any event, he progresses through the school as an individual, and not in lock-step with any group, very much as he does through the jobs of a shop course. (Students usually advance as a group and not individually through the lessons of a class course.) Being taught largely by the group and not the individual method, they ostensibly at least advance from one lesson assignment to another abreast. There seems to be no remedy for this except the assignment of profitable home study work to the more capable students over and above the minimum required for the less capable.

Effective instructional order.—The most effective instructional order in the presentation of any teaching material is the one which enables the learner to understand it with the least difficulty—the least expenditure of time and effort. This applies in three ways: to the order in which the teaching material of any lesson is planned and presented; to the order in which the lessons of a course are arranged and therefore presented; and to the order in which the unit courses of a general course are taken by a student who is a candidate for an evening school diploma in his line.

Information bearing on this subject will be found in Chart LXXIV of the Appendix and in Chapter X, “Courses of Study.” See also Chapter XI, “Getting and Scheduling Unit Courses.” What is believed to be the best arrangement of ten lessons planned for a

unit course in carburetion (for auto mechanics) is given in Chart LXXIII of the Appendix.

Adequate repetitive training.—Any training given by the evening school should be carried at least far enough to fix what has been taught. Otherwise the student cannot use the skill or knowledge to which he has been exposed. As the aim was to give him a wage-earning asset, the course has failed and there has been a useless expenditure of time and effort. In shop and drawing courses, the objective is to give the student certain elementary habits of skill in the performance of certain types of shop jobs. Habits require the practice of correct ways of doing things long enough to make the use of these ways more or less unconscious—more or less automatic. This requires adequate repetitive practice (experience) of the same manipulative skills on different jobs. Several matters are involved in this problem:

One is the time element. Given 100 hours of evening shop instruction in the operation of a lathe, what operations as a minimum can the ordinary workman from the metal trades, who is inexperienced as a lathe operator, learn to do satisfactorily within that time? Only an instructor from the trade can answer that question. A second matter is the selection of jobs. What types of jobs will best provide the practice necessary to fix the ability to perform these operations, and how many jobs as a minimum can the ordinary student workman complete? Here again the instructor from the trade must find the answer.

A third matter is the arrangement of these shop jobs in the proper instructional order. This means not only that every job assigned should lead naturally out of the previous one and to the next job. It means also that new jobs must provide for the repetition of old operations as well as experience with new operations. What types of lathe jobs can be arranged in a sequential order so that each job prepares for the next more advanced job, and advanced jobs provide further practice in the operations taught in earlier jobs? Here again only the workman instructor can answer the question. Among school people, this use of more advanced work to provide also further practice in more elementary processes is called the *spiral method*.

In class courses the problem is more varied and difficult. Courses in applied mathematics, such as the mathematics of lathe-operating, provide an opportunity for repetitive training almost, if not fully, equal to that of shop and drawing courses. In such courses, students are trained in thinking with (using) formulas which apply to different problems. They must, to illustrate, acquire reliable habits in doing the different kinds of figuring required for different kinds of lathe jobs. Only through repetitive training can they acquire skill in sizing up the problem, selecting the right formula for use, taking the right measurements, substituting them in the formula, and solving the formula correctly. It is just as possible and easy as in shop courses to provide an instructional order in the lessons which will move from simple to more complicated jobs and formulas, so that each lesson paves the way for the next and advanced lessons, and makes use again and again of formulas taught first in earlier lessons.

In what has been called, for want of a better name, informational or shop knowledge courses, which present a considerable body of new facts and ideas, the task of securing repetitive training is far more difficult. Here the instructor must rely largely on the clear and forceful presentation of his teaching stuff; on the constant tie-up of new matter with old experience; and on the constant application of new matter to real jobs. If he makes this tie-up successfully, most of what he teaches will usually stick until the student fixes his understanding of it by use in his own employment or at least by observation of its use. There are various ways in which he can increase the repetition of the thinking by the student regarding any facts or ideas he has taught: He should review the old lesson before starting the new one. He should explain the new lesson before he assigns it. He should hold frequent oral quizzes on points covered in past lessons and occasional quizzes. And he should always use thinking instead of *memoriter* questions, and test by the ability to think with knowledge and do things with knowledge.

Utilization of Best Ways for Giving Manipulative Skill, Technical Knowledge, Job Intelligence, and Auxiliary Information

In any evening industrial school, a wide variety of occupations is included in the courses, and these courses cover an even wider variety of subjects and subject-matter. As methods of instruction must be adapted to the "teaching stuff" which is to be "put over," there can be no such thing as a uniform or set way of giving instruction, but only an infinite variety of ways and combinations of ways to which the instructor must resort in order to adapt his procedures to the subject, the group, and the student. In Chapter IV, "The Evening School Student," his general characteristics which affect the policies and methods of teaching him were discussed. This section will be largely devoted to the question of the selection of subject and method—to the problem of selecting the best tool or tools for putting over this, that, or the other kind of subject-matter or lesson.

Teaching vs. cramming.—Evening school students do not attend to acquire a veneer of useless information or even to be "packed" by the lecture method with a body of unused though useful facts and ideas, but to be taught how to use either mentally or manipulatively both old and new knowledge which functions in their job or their line. Every one who stops to think knows that any human being soon forgets what he does not understand, what he does not think about (consider, mull, react upon), what he does not put to some use either in thinking or doing, for after all thinking is just mental doing. As it is a waste of time and effort to teach anybody a mass or mess of facts which he does not retain, the most vital problem of the evening school is that of finding ways to make what it teaches "stick." This constitutes real teaching; anything else is merely going through the motions of teaching.

Five essentials in real teaching of student workmen.—An instructor *teaches* them when he does these five things efficiently: (1) He ties up new stuff with old experience (building on the real foundation of what they already know or can do); (2) he applies the new stuff to the real problems and situations of the learner's job or line (making usable subject-matter usable); (3) he has the

learner participate in the learning by thinking and doing (learning to think by thinking, to use by using, to do by doing); (4) he checks the learner's work by the ability of the learner to understand and to use what has been taught (testing progress and ability by performance); and (5) he helps the learner over the difficulties and weaknesses which the check has revealed and sets him at work again to run under his own power. Whatever may be the current practices of any evening school, the fact remains that they get efficient results at reduced effort in proportion as these five things are accomplished. To accomplish them, an instructor must use a wide variety of methods to fit different conditions.

Methods to suit.—It is obvious that there is no place in any evening school for formal class drill on the repetition of mere words or facts or even of formulas, nor for the straight lecture which merely peddles information, nor for oral or written examinations which merely test the temporary ability of the learner to recall facts. On the other hand, there is the widest possible use for class drill, if we mean continued practice in thinking with information or using information to solve problems, exercise judgments, make decisions, choose right ways of doing things, plan work, and execute it. There is abundant need also for talk by the teacher which presents, illustrates, illuminates, demonstrates, and applies facts and ideas. And oral or written tests have their most valuable place, as well as performance tests, when they test the understanding of students and their ability to make use of the help the instructor has given them.

Taken as a whole, the methods of teaching used with student workmen are efficient in proportion as they accomplish these ends:

1. They use the previous experience of students as the basis of instruction.
2. They teach through the eye more than through the ear.
3. They secure participating experience from the student.
4. They call for understanding, thinking, and use instead of the memorizing and temporary recall of words.
5. They check progress in understanding, thinking, and use instead of the temporary ability to recall information.

6. They develop efficient habits of getting and using knowledge instead of "memory."
7. They provide the repetitive experience necessary to develop habits of skill in doing or thinking to the required standard.
8. They meet the current learning difficulties of students.
9. They save unnecessary effort in learning.

Some recognized teaching devices.—All the devices given here are used more or less in the evening industrial school. The comparative extent of the use of each device varies widely as between shop or class courses; between different kinds of shop courses or of class courses; between different subjects; and as between different groups of learners. It will not be possible here to do more than list these devices and make brief comment regarding them:

CHART XXXIII

SOME RECOGNIZED TEACHING DEVICES AND COMBINATIONS OF DEVICES USED IN THE EVENING INDUSTRIAL SCHOOL

I. Lecture	VIII. Suggestive question
II. Assigned reading	IX. Discussion
III. Recitation	X. Practical experience of students (daily work)
IV. Demonstration (or illustration)	XI. Problem project or school job
V. Lecture and demonstration	XII. Examination, formal
VI. Demonstration and question	XIII. Test (performance) (formal)
VII. Informational question	

The first six of the above devices, and devices Nos. IX, X, and XI need no explanation. An informational question is any question asked by the instructor from learners for the purpose of getting (establishing) facts by "pulling" them out of the experience of learners instead of stating them himself. Suppose, for example, in a unit course on frames and axles, the instructor is leading up to the problems presented by the greater wear of front tires on the outside edge. He uses these informational questions: "Have you ever checked up the front tires on an auto to see whether they are worn more on one edge than the other?" If the student says "no," the instructor says, "Check it and find out." If the student says "yes," the instructor proceeds: "Are front tires worn uniformly?" to which the answer is, "no." "Are they worn more at

center or edge?" to which the answer is "edge." "On which edge are they most worn?" the answer being "the outer edge."

On the other hand, the suggestive question is asked primarily not to develop facts but to stimulate thinking. For example, in the above illustration, the instructor is now ready for these questions: "What causes wear on tires anyhow?" "Is not the body of the load carried on the middle of the tire?" "If so, why is the tire worn least at that point?" "If the wear is greatest on the edges, why not on both inner and outer edges of each tire?" "Why not on the outer edge of one tire and the inner edge of the other?" "What effect on the tire does wobbling produce? improper alinement?"

Under *examination*, as we use the term here, are included customary written and oral quizzes for finding what students know; and under *tests*, the devices and tricks for finding what they can do with what they are supposed to know. There is very little time for formal and special tests in the evening school, and yet abundance of time for testing the progress and status of students, if the emphasis is laid in every assignment on performance—on the use of skill and knowledge—and the ability to do this is checked with all subject-matter taught. In our opinion, the use of examinations should be reduced to the absolute minimum necessary to secure the industry of students in those courses where tests are impracticable.

The formal class recitation has no place in the evening industrial school, which merely checks students to find whether they have studied the lesson or can recall verbally what the book or the lesson sheet said. An ounce of such class recitation to a hundred-weight of real class discussion would be about the right proportion.

Values and use of recognized teaching devices.—In the last chart, No. XXVIII, thirteen such devices were presented. We shall not attempt to rate their value for instruction quantitatively, but only comparatively. In doing this, numbers will be used to designate the corresponding devices in that chart. From the standpoint of their relative efficiency on the whole for *teaching* (in all its phases) the typical student workman in the evening school shop, our rating in the descending order of value is as follows:

For varying phases of shop instruction, we place about on a level devices V, VI, X, and XI. Following these, in a descending order, devices Nos. IV, VII, VIII, and IX are grouped about on a level as to instructional value; while the remaining devices are rated in this sequence: Nos. I, II, XIII, XII, and III. The formal test is rated low because it is an unnecessary time-consuming device for which the proper check-up of proper assignments and student work furnishes a fully adequate substitute. This is even more true regarding the formal written examination and the formal recitation as fact-peddling.

In a previous paragraph there were presented five essentials in the real teaching of student workmen. Here an attempt is made to indicate, without rating, the special use of some of these devices just discussed to insure these essentials:

1. Tying up new stuff with old experiences: Devices Nos. X, VII, VIII, XI (see Chart XXXIII)
2. Applying new stuff to the learner's job or line of employment: Devices Nos. X, VII, VIII, XI, IV, V, VI, IX, and I
3. Getting participating experience from the learner: Devices Nos. X, VII, VIII, IX, XI, VI, and II
4. Checking progress and ability of learner: Devices Nos. X, VII, VIII, IX, XI, VI, XIII, XII, and III
5. Helping learner over difficulties: Devices Nos. VII, VIII, IX, XI, V, VI, IV, I, II, and III

Mediums used in instruction.—Broadly speaking, there are about five recognized mediums through which students may be helped to learn. One is real participating experience by the learner. This may consist either of his previous experience as a workman, to which the new skill or knowledge applies, or of current practice in the use of a new skill or new knowledge. A second is the motion-picture, which is the most realistic representation of real experience. It can never become an adequate substitute for real participation by the learner, but it is the next best device and invaluable for bringing to the school the visualization of things otherwise impossible. A third medium is the still picture, useful, but lacking in vividness, flexibility, and realness because it cannot picture either men or machines in motion. Still a fourth is instruction by word of mouth, usually called the lecture (listening through the ear).

Finally comes the printed page (listening through the eye). These five mediums are listed above in the descending order of their efficiency in real teaching.

Experience always ranks first because it calls for the full activity of the learner—ear, eye, hands, body, and mind. While the “movies” make a powerful impression through the eye, they do not necessarily call for any other participation by the learner and this is even more so of “stills.” The straight lecture is rated low because its teaching value is almost entirely limited to the use of the ear, but it ranks above the printed page because of the direct contact with learners of the former. On a scale of ten, we should rate them about as follows: experience 10, motion-picture 6, still picture 4, lecture 3, book 2.

Tell, show, do, and check.—Another way to describe teaching, that puts over its objective of better understanding and greater ability on the part of the student to use skill or knowledge, is in terms of these four broad procedures which the instructor may employ: He may tell students (with words) and not show (demonstrate or illustrate); he may show and not tell; he may both show and tell but not require students to do (participate by thinking or performing); he may tell, show, and have students do without checking their doing (performance); or he may tell, show, require doing, and check the doing. If the purpose of the evening school is to improve the ability of students to understand and to do, then the first of these procedures is the poorest and the last is the best. It takes a longer time than merely to race through a body of undigested subject-matter, but it produces results and is sure in its operation. In the end, also, it saves time and effort in the real *learning* of skill or knowledge.

In each of these procedures certain devices listed below are used which are easily recognized:

Telling (by the instructor) —uses the lecture (talks), assigned readings from books, job instruction sheets, informational sheets

Showing (by the instructor) —uses demonstration of the real thing, laboratory experiment, moving-picture, still picture, chart, and diagram

- Doing (by the student) —in the shop does operations, practice jobs, commercial jobs, lay-out work and measurements, figuring, planning; in the class uses formulas, solves problems, and participates in class discussion, conference, questions, and home work
- Checking (by the instructor)—rates progress and detects difficulties of students by the inspection of shop and class work, by the assignment of problems and projects, by questioning, by class discussion, by review, and by performance tests

The four steps in teaching.—This chapter would not be complete unless it at least called attention to the great value and extensive use of the four steps in teaching by the evening industrial school. These four steps are: preparation for the new lesson, presentation of the new material, application of the new material by the student, and testing to find whether he understands and can use it. The logical and clear-cut character of this method of arranging skill or knowledge for presentation, its simplicity and practicality as a thinking and organizing device, appeal very strongly to the workman instructor, who, as has already been said, "takes to it like a duck to water." As any adequate treatment of this kind of lesson-planning would require more space than is available here, the reader is referred to the most excellent and exhaustive treatment of the subject by Dr. C. R. Allen.²

One difficulty, however, must be noticed here. Experience seems to show that instructors from the trades have little trouble in distinguishing between these four steps in the preparation of material and the planning of lessons. Their greatest difficulty is to arrange an effective balance in the time and attention required for each step in the lesson. When too much time is given to unnecessary preparation, through review and informational and suggestive questions, the other steps suffer. On the other hand, when preparation is not sufficient, students lag in interest and lack the background for the new material. Similarly when presentation is slighted, students are confused when they come to apply what is

² *The Instructor, the Man, and the Job* (J. B. Lippincott Company, 1919), pp. 148-174.

taught; but when too much time is given to presentation, not enough is left for application and testing. Obviously, when the application is not carried far enough to clarify and fix instruction, the results of testing are unsatisfactory: and when too much time is given to application, no time remains for a test of whether the instructor has put over his lesson. This difficulty is one which can be handled in only one way—through helpful inspection and criticism by the evening school director or his supervisory assistants.

In this book, the plan has been to discuss the problems and procedures of the school first and then to take up the kinds of organization, management, and supervision which are best adapted to these conditions; hence the next chapter on local organization.

QUESTIONS

1. Check up your own evening school, or one with which you are familiar, against the twenty efficient policies and procedures described in Chart XXXII of this chapter. Have another person do this also; rate the school; and compare the results.
2. Set up a unit course of five lessons on the policies, methods, and procedures to be used in giving individual instruction through evening class courses. These lessons are to be taught in a teacher-training course to evening school instructors. Give each lesson a topic and indicate the points to be brought out under each topic.
3. Make a list of at least ten important labor-saving devices in evening school instruction. Check and rate your own school, or one with which you are familiar, against this list. Have another person also do this and compare the results.
4. What is the difference between methods of instruction and the instructor's technique in teaching? Give five examples.
5. Check your own experience with home study as an evening school device with that of four other experienced persons. In this way form a judgment in these matters about such home study work: inhibiting factors; kind of home assignments that "work" successfully; kind that do not "work" successfully; weakness and value of home study by student workmen.

CHAPTER XVIII

LOCAL ORGANIZATION

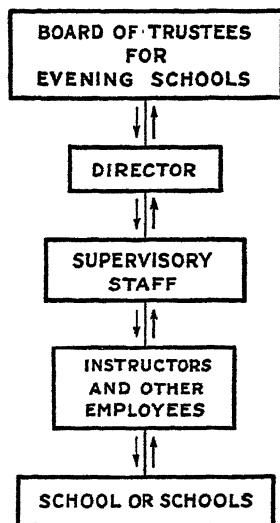
Good planning by an evening school director takes two forms: Sometimes he plans in advance to prevent troubles, which interfere with the service, from happening. Sometimes he plans to remedy troubles which have arisen so that they will not happen again. No one piece of planning is more far-reaching in its results than the setting-up of an efficient organization of the evening industrial school. This kind of planning is discussed in this chapter under these heads: Line organization, defining powers, duties and responsibilities; the evening school director and his staff; organization as a cost factor; and the general evening school.

The Line Organization

Setting up a simple line organization.—In very few instances is an evening school operated as the sole activity of an administrative board. So far as we know, this situation could exist only where a private endowment was used exclusively to support an evening school. Even in such a case, the director would have the problem of securing a definite understanding regarding his duties and powers and his relationship to his board and to his subordinates. His first step would be to diagram the line organization of which he would be the executive officer. By *line organization* we mean the line along which recommendations move upward from subordinates to him and from him to his board, and along which decisions move down in the opposite direction. These decisions, of course, take all such forms as rules, regulations, and instructions. His next step would be to present this plan to his board, accompanied by an oral or written explanation of its meaning, and work for its approval. As the foregoing case presents the simplest form of evening school organization, it is shown in a chart and made the basis of the discussion of the more complex organizations which follow:

Comment. The ascending arrows show the path of recommendation and suggestion, and the descending arrows the path of decisions (rules, regulations, instructions). The diagram, however, must not be interpreted as meaning that all recommendations from below of subordinates to superior officers travel

CHART XXXIV
SHOWING SIMPLE LINE ORGANIZATION OF PRIVATELY ENDOWED EVENING SCHOOLS



the whole path to end in a decision by the board nor that all decisions are made by the board and travel the whole path to instructors and other employees. On the contrary, these recommendations would stop with some official up the line to whom had been given the responsibility and power of approving or disapproving the recommendation made; consequently, the decision regarding the recommendation would start with this official and descend downward to the person who made it. Obviously, the official making the decision would need to be sure of his authority; otherwise he likewise would set on foot his decision and send it upward to his superior officer for a ruling. Where he had the authority but was uncertain as to the wisdom of his decision and the like, he would take this action also. Obviously, the director must not only chart a line organization, but he must on the basis of such an organization define and have approved all such things as relationships, powers, duties, and responsibilities, so that recommendations will take the proper course, stop at the proper place, and result in authoritative decisions which in turn will take the proper course and

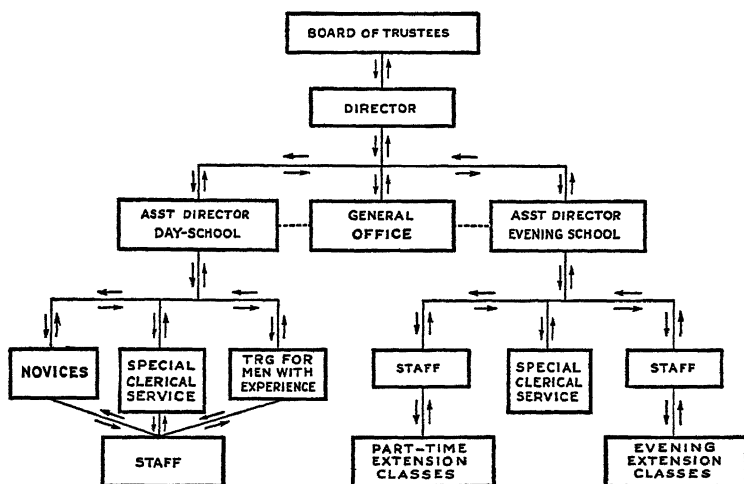
stop with the proper official for further action. This process of putting flesh and blood in the form of specifications on the bare outline of the staff organization is discussed at a later point.

The private trade-school and its line organization is presented next because, while more complicated than the foregoing illustration, it still presents a much simpler situation than that which usually confronts the director of a public evening industrial school. Such trade-schools usually operate full-time, part-time, and evening classes instead of evening classes only. In some of them the director administers the day-school activities himself and has an assistant who handles the evening classes. Unless the part-time classes are quite numerous, they are administered by either the

director or this assistant. Where such classes are numerous, they would be handled by a special assistant also. The following chart pictures the line organization of one private school:

CHART XXXV

SHOWING ONE LINE ORGANIZATION FOR A PRIVATE TRADE SCHOOL



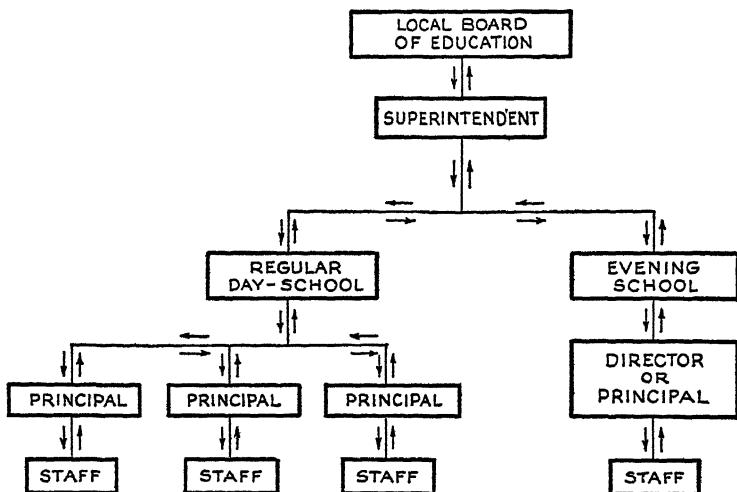
Comment. In this private school, the administration of the day work is under one assistant director and that of the part-time and evening work under another. Arrows indicating the line of recommendation and decision have been used for the evening school phase of this school. Inasmuch as all the office activities of the school are quartered in one central place, the dotted line indicates certain relationships, duties, powers, and responsibilities of each assistant to the general office force—a matter which will be discussed later. For the evening schools, a small number of clerical assistants, serving after 6 P.M. during the season, are directly responsible to the assistant director for this service. This same sort of diagram would also picture the usual organization of the educational work of a large manufacturing plant which provided full-time and evening classes, except that above the director of education there would be the manager of the plant responsible to the board of the corporation.

A simple public evening school situation is found in many smaller communities throughout the country where the superintendent has no assistant superintendents, but deals directly with

the principals of each elementary and high school building. Having determined to establish an evening school, he secures some local man to "head it up." If there is only one center and that a small one, this man becomes principal of some building after 6 P. M. and proceeds to operate classes after that hour. If there are several centers, there may be a director of evening schools over such principals. Arrows indicate the line organization in the following chart:

CHART XXXVI

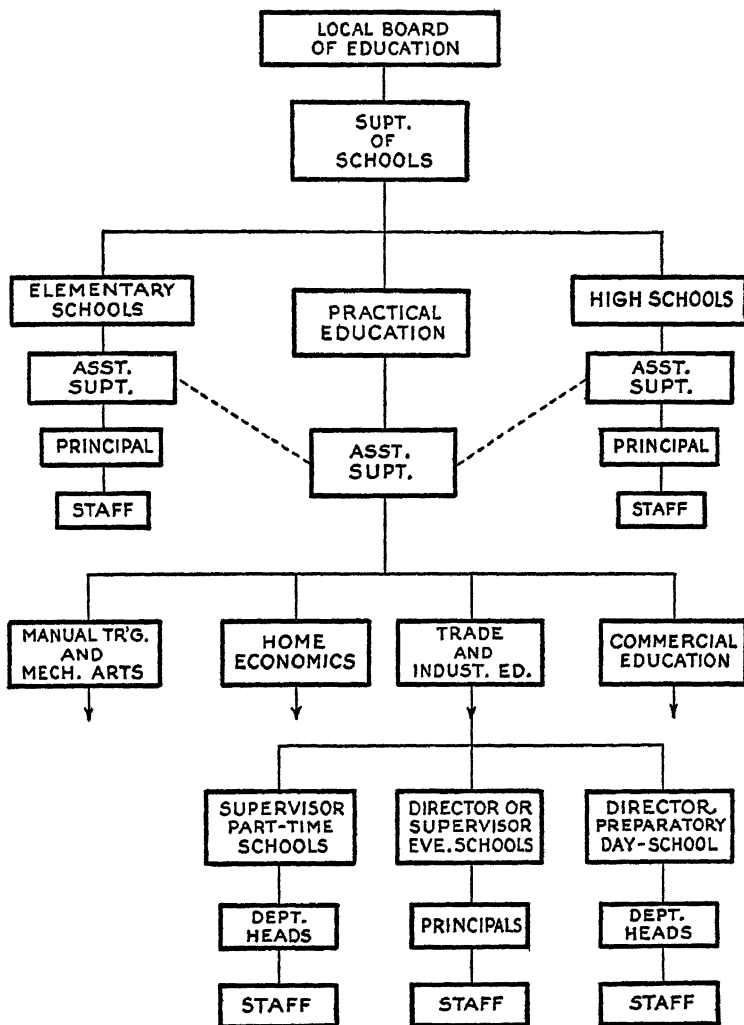
SHOWING A SIMPLE LINE ORGANIZATION OF A PUBLIC EVENING SCHOOL IN SMALL COMMUNITIES



The line organization of a large public educational system takes many forms, and because of the size and diversity of the work presents a somewhat bewildering array of activities and officials in the midst of which the person (director) primarily responsible for the evening industrial schools does his work. In the chart on page 249 we have stepped from the simple situation of a smaller community to the more complicated one found in a large city, let us say of at least 500,000 population. If the vocational and practical arts education work has been given proper recognition, we may

CHART XXXVII

SHOWING THE PLACE OF PUBLIC EVENING INDUSTRIAL SCHOOLS IN ONE
LINE ORGANIZATION FOR A LARGE COMMUNITY



have three assistant superintendents, one of whom is responsible under the superintendent for all of what we may call practical education in all such fields as manual training and the mechanical arts, commercial education, home economics education, and trade and industrial education. If this last field has been extensively developed and is being properly supported, there will probably be a director or supervisor of evening classes held in one, two, three, or more centers. This would give us some such lay-out as Chart XXXVII. The dotted lines indicate the need of and possibilities for helpful coöperation between the heads of the three services in trade and industrial education, (preparatory, part-time, and evening); between the staffs under them; and between the assistant superintendents for elementary, high, and practical education respectively.

Locating the evening industrial school in a line organization.—It is probably not often that the head of an evening industrial school program has very much to say about the place he or his staff occupies in the organization, about where they are tacked on, if you please, in such diagrams as the foregoing. Usually this is determined by the powers that be before his appointment; whereupon his task becomes one of making the best of the situation as he finds it. Occasionally, he may succeed finally in securing a better planning of his work by a rearrangement of the line organization. Sometimes he is appointed and asked to make suggestions or recommendations about the location of his department in the organization.

Most vital of all to him is the question as to what school official is to be his supervising officer with whom he must deal; to whom he must make recommendations as to policies, standards, procedures, rules, and regulations; whose decisions he must carry out; or on whom he is dependent for the support of his program. The decision, which must be made by superintendent and board, as to which superior officer shall be assigned the general oversight of an evening school service cannot be made on the basis of personalities. The assignment cannot be made just because one official is friendly to the evening school program but another is not. Furthermore, this new service is being fitted into an organization

which has already been set up and is operating as a going concern. To a very large extent, the problem is always solved by putting the new service in charge of the official who is already engaged in the administration of services most like the evening school program; logically there is where the new work belongs.

A choice between policies sometimes arises, however, and there are certain principles that may be brought to bear on the problem, which is only a real problem in the larger community. A glance at the comparatively simple line organizations pictured in Charts XXXIV to XXXVI shows that under such conditions the matter takes care of itself naturally, but not so in the complex situation found in a large educational system such as is represented in Chart XXXVII. Among the principles which should apply in determining where the evening industrial schools shall be anchored in such a line organization are all such as the following:

1. Where there is an assistant superintendent for "practical education" or "vocational education" or "special forms of education," the new service belongs to him rather than to his associate assistant superintendents.
2. Where there is already a director of vocational education, the new assignment belongs to him.
3. Where there are two assistant superintendents for one elementary school and one for high schools, the evening school service logically belongs to neither.
4. Under these conditions, the director of vocational education should endeavor to hook his work directly to the superintendent and deal with him directly.
5. This would be equally true should there be no director of vocational education, but only a director of evening school service.
6. If the evening school service must be assigned either to the assistant superintendent for elementary work or to the assistant for high school work, the assignment should from the logical standpoint be made to the assistant superintendent for secondary schools.
7. No matter to whom the assignment is made, the head of the evening school service is vitally concerned with all such

questions discussed later as these: the attitude of his superior officer toward the evening industrial school as a public education service; his preconceived or fixed notions about what constitutes education, particularly industrial and trade education for working people; and his theories or policies regarding administration. Particularly on this last point is it vital that his superior officer should believe in employing experts and in relying on the recommendations of experts concerning matters on which he is not an expert, but only an intelligent consumer of expert service.

Defining Responsibilities, Duties, and Powers of the Director

Any administrative officer in a line organization needs to get clearly established just where he "gets on" and "gets off" in his dealings with his superior officer, and this is equally true with regard to his subordinates. They have the same necessity and the same right, as he does, to have their responsibilities and powers defined.

Necessity of an early understanding.—At the very outset, certain practices begin in the relations between these two men which if persisted in soon become established policies. The sooner, therefore, that sound practices are recognized and put into effect, the better. Usually, the man who comes forward with a tactful but sound and clear-cut scheme shapes the conditions under which the mutual task is discharged. We are here concerned only with sound practice. In too many instances among school officials, there is a grave lack of understanding between superiors and subordinates regarding their responsibilities and authority, which inevitably produces confusion, lost motion, and friction. Even when some sort of a *modus vivendi* has grown out of daily contacts, there still remains a sort of twilight zone in which rest a great many questions and issues which have never been settled and which by tacit consent both parties carefully avoid. This sin is not confined to schools. It exists in business concerns where no definite steps have been taken to deal with the problem as a cost-production factor. Where this is done, it results in precisely the same kind of procedures which are suggested below for the evening industrial school.

The first step in this understanding is to diagram, as illustrated in the foregoing charts, the line organization, and to give the evening school director and his staff of instructors and other employees their definite and appropriate place in it. When this is done, the arrows immediately suggest as a second step the line of recommendation and decision, of proposal and approval or rejection, of suggestion and adaption, and of rule and execution of the rule. Out of these there arises as a third step the problem of defining what may be called the general working relations between the evening school director and his immediate superior officer.

The second step is to establish sound working relations between the evening school director and his superior officer. There should be from the start a *modus vivendi*—a way of working together—set up between the two men. Usually this is first “talked out” between them. The results should then be summarized on paper and agreed to by both parties as representing the policies and procedures they are to follow until a definite change is made. All this is done as a matter of course in business, but in many school systems there exists for some reason a strange reluctance to follow it. What possible valid objection there could be to the proposal that whenever two men have a responsibility for the same enterprise they should agree in a businesslike way upon their respective responsibilities and spheres of authority, we do not understand. Some of the general issues that should be settled in this way are indicated by the chart on page 254.

Comment. Of course no evening school director would presume to check these items against his superior officer personally or perhaps to be as blunt and direct in his description of good and bad practices as the foregoing statement. If he is to deal with the question of official relations and policies constructively, however, he needs first to study the practices of his chief by the use of some such checking sheet; then he will be in a position to make in a tactful way suggestions for curing bad policies and to begin educating his chief in the wisdom of good ones. His path lies from the first column to the second column of the chart; sometimes it is a long and difficult journey; but “a stitch in time saves nine.” Undoubtedly the best method is not preaching, argument, and appeal, but to put down on paper, in a systematic, logical way, the procedures which embody sound policies and ask for their approval. These procedures should cover every important matter—every main duty of the total job which together the two men must perform. Since precisely the

CHART XXXVIII

GOOD AND BAD POLICIES AND PROCEDURES OF A SUPERIOR OFFICER OF AN EVENING SCHOOL DIRECTOR

Bad policies of a superior officer

1. Insists on being "It"
2. Controls all matters directly
3. Assumes direct responsibility for himself in all matters
4. Looks upon the evening school director merely as a clerk or administrative convenience
5. Interferes by dealing directly with employees under the evening school director
6. Insists in making rulings on specific cases
7. Makes decisions without consulting the evening school director
8. Treats the director as one who knows less about some things, and therefore less about everything, than his superior officer
9. Avoids defining the duties and responsibilities of the evening school director for the various phases or activities of the work, such as the selection of instructors, methods of instruction, and getting and organizing unit courses
10. Gives only destructive criticism to the work of the director
11. Does not stand by his staff under fire

Good policies of a superior officer

1. Does not want to be "It"
2. Delegates authority to control many matters
3. Delegates responsibility for many matters to his subordinate
4. Looks upon him as the responsible executive officer of the evening industrial school program
5. Deals only with the evening school director, leaving him to deal with subordinates
6. Sets up general policies and regulations and leaves the director to exercise judgment in applying them to specific cases
7. Makes the recommendations of his director the basis of his decisions
8. Selects a director who knows more about evening industrial schools than he does and treats this director as an expert as long as he proves to be such
9. Defines the duties and responsibilities of the evening school director for each phase or activity
10. Makes only constructive criticism
11. Backs up his staff to the limit when in difficulty

same statements made in the chart describe the bad and good policies of an evening school director in dealing with his own subordinates, he needs also to check himself against them and change his policies accordingly.

The third step in the arrangements for team-play between the evening school director and his chief is an agreement regarding the responsibilities which each shall discharge. In theory, at least, all power and authority rest with the superior officer in general charge of the evening schools, and therefore all responsibility rests with him. As this chief cannot discharge this responsibility without help, the evening school director has been appointed to take over some of it; consequently there must be some understanding between the two men as to just what responsibilities are assigned to the director. Since every responsibility creates a corresponding duty, the latter can only know his duties after his responsibilities have been defined. As every duty carries with it the corresponding authority to perform it, he can only define his powers, his sphere of authority, after his responsibilities and duties have been clearly stated.

In theory, a chief could use an evening school director merely to carry out explicit orders and instructions and without even the privilege of making any recommendations to his superior officer. Essentially this would constitute a relation in which all responsibility is assumed by the chief and no real responsibility is delegated to the director. On the other hand, this chief might in theory simply say to the director, "You run these evening classes any way you want and don't bother me about them. As long as everything goes all right you will have a free hand." Essentially this would constitute a delegation to the director of full responsibility for every feature of the evening school work.

In practice, neither of these two policies ever happens. The chief of the director always delegates some responsibilities and retains others. He always retains or should retain, for example, the full responsibility for dealing officially with the officers above him about the affairs of the evening school. He reserves the right of final decision about some matters such as the approval of the budget and the appointment of instructors, but if he is a wise administrator, he gives the director the responsibility of making

recommendations about the budget and the personnel of the teaching force. In other words, he delegates to the director certain recommendatory responsibilities in certain matters. There are still other items, however, such as supervising instructors and the preparation of lesson material, concerning which authority is given the director to act without securing the approval of his chief in advance. Regarding these matters, the responsibility delegated to him is full rather than partial or recommendatory.

As a third step, therefore, and probably the most important of all, the evening school director needs to have his general responsibility defined regarding the various activities and problems of his schools. In this task he would be greatly helped if, by conference, his chief would agree to some such listing and delegation of responsibilities as are set up in the following chart:

CHART XXXIX

FULL VS. RECOMMENDATORY RESPONSIBILITY OF AN EVENING SCHOOL DIRECTOR TO HIS SUPERIOR OFFICER

<i>Responsibilities of the director</i>	<i>Full</i>	<i>Recommendatory</i>
1. Making the general plan for the evening school		X
2. Executing the general plan through the evening school force	X	
3. Making the budget		X
4. Spending the budget	X	
5. Selecting instructors and other employees		X
6. Supervising instructors and other employees	X	
7. Selecting buildings for the service		X
8. Management and maintenance of building during evening school session	X	
9. Determining courses of study		X
10. Supervising courses of study (to standards)	X	
11. Preparation of lesson material	X	
12. Selecting and purchasing special teaching equipment		X
13. Use or maintenance of teaching equipment	X	
14. Purchasing or use of shop or class-room supplies	X	
15. Determining methods of teaching		X
16. Improving methods of teaching	X	
17. Entrance requirements to courses		X

CHART XXXIX—*Continued*FULL VS. RECOMMENDATORY RESPONSIBILITY OF AN EVENING SCHOOL
DIRECTOR TO HIS SUPERIOR OFFICER

<i>Responsibilities of the director</i>	<i>Full</i>	<i>Recommendatory</i>
18. Selecting and purchasing instructional material (textbooks and the like)		X
19. Testing the progress of students	X	
20. Discharge of instructors and other employees		X
21. Administering discipline (with right of appeal)	X	
22. General rules and regulations		X
23. Detailed rules and regulations	X	
24. Season and hours		X
25. Advertising and publications		X
26. Salaries and wages		X
27. Setting fees and refunds		X
28. Collecting and refunding fees	X	
29. Setting standards for credits		X
30. Applying standards for credits	X	
31. Determining credits	X	
32. Records, files, and reports	X	
33. Issuing certificates and diplomas		X

Comment. From such a chart (No. XXXIX) arise in a graphic way a number of vital questions: For what matters have the two men a joint but different degree of responsibility? All matters in both columns. In what matters has the chief retained the right of final action? Those listed in the second column. Regarding what matters has he agreed not to act until he has consulted the director? Those of the second column. For what matters has he delegated full executive (direct) responsibility? See the first column. What matters does he control directly? See the second column. What matters does he control only indirectly by improving the director? Those found in the first column. Where will the director find his direct duties? In the first column. Where his indirect or recommendatory duties? In the second column. Where does he look for the matters over which he has authority to act? To the first column. About what matters does he give orders to subordinates? Those of the first column. Concerning what matters does he wait for decisions from his superior officer? Those found in the second column. For what matters does the director make plans? See both columns. For what matters does he both plan and supervise the execution of his plan? See the first column.

The distribution, in the chart, of responsibilities, and therefore of duties and powers, is not presented as an absolutely perfect arrangement or as one in which under changing conditions some modifications would not be made.

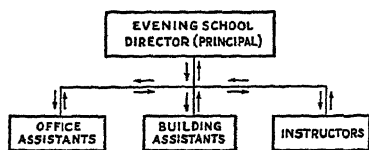
It pictures, however, the policies of two men who for some twelve years have occupied the positions of chief and subordinate in the administration and supervision of one evening industrial school. These policies were established in the beginning and in our opinion have stood the test of experience. Running through the chart, the reader will note many couplets such as Nos. 1 and 2, making the general plan and executing the general plan, and Nos. 5 and 6, selecting and supervising instructors and other employees. These illustrate the application of one general but simple principle. It is the province of the chief to make final decisions concerning broad matters of policy and that of the director to carry out those decisions. It is the province of the director to recommend for decision and to carry out the decision. Such an arrangement can never be sound and efficiently executed without some such definite charting as has been undertaken here.

The Evening School Director and His Staff

For the staff of employees under him, the evening school director is in turn a supervisory officer or chief. There is the same need for a clear-cut understanding of his and their relations and responsibilities as was outlined above for the director and the official over him. It certainly would be inconsistent for any director to secure or accept any such working arrangements with his superior officer as were discussed above while at the same time he failed to apply the same principles in dealing with his own subordinates.

The first step of the director is to diagram, more in detail, the line organization of which he is the head, as he can scarcely expect the staff under him to do this.

CHART XL
SHOWING SIMPLE LINE ORGANIZATION OF
SMALL EVENING INDUSTRIAL SCHOOL



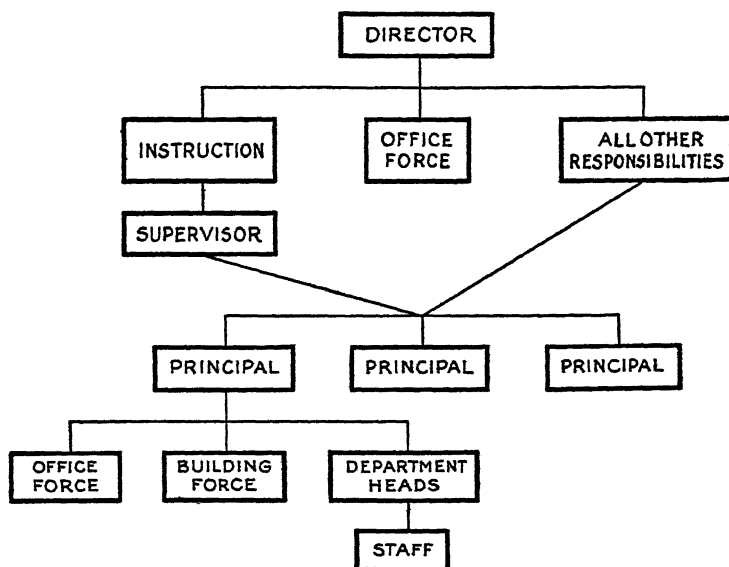
Because of the infinite variety of conditions, such a diagram will vary from a very simple to a somewhat complicated one. Here is the one simplest possible arrangement—an evening school of moderate size in a single building and a director who is really a principal. The arrows indicate the line of recommendation and decision.

In a large evening school system, a principal for each building would be necessary and under him there would be such clerical assistance as he required, any engineer or janitor and for ad-

ministrative purposes, at least, the staff of instructors. If the work of any line were extensive because of the wide variety of courses and a large enrolment, there would be one instructor who served as head of this department. If a day industrial school occupied this building also, the head of the same department in the day-school would usually serve in the same capacity in the evening school. Should the work require it, the director may have an assistant, usually called a *supervisor*, who takes over under the director certain duties and responsibilities, usually those connected with the supervision of the work of instructors and their improvement in service. All this is represented in the following arrangement:

CHART XLI

SHOWING ONE LINE ORGANIZATION OF A LARGE EVENING INDUSTRIAL SCHOOL

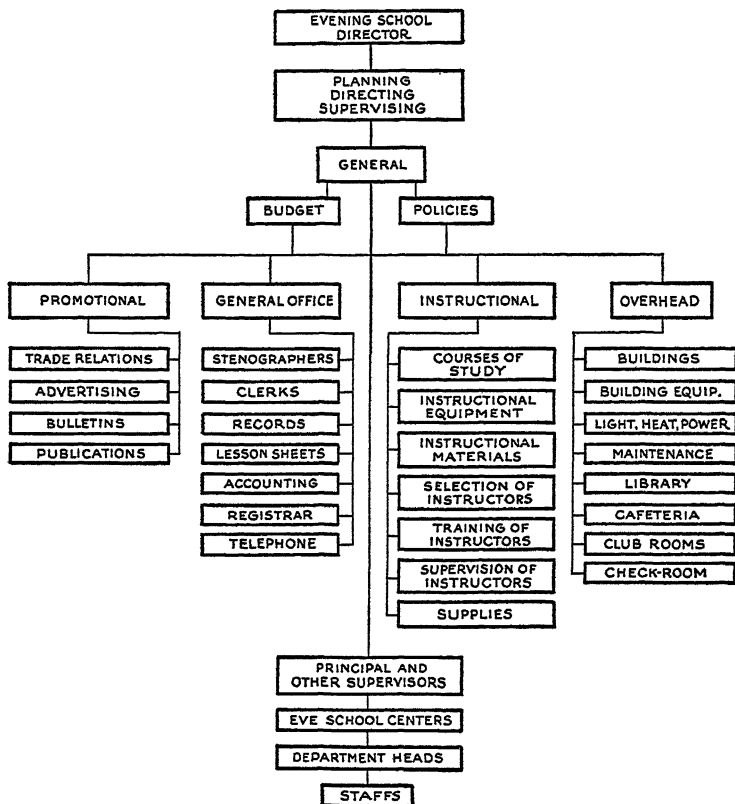


The second step is to establish sound working relations between the director and his staff—a *modus vivendi* or way of working together. As this matter has already been presented in the case of

the director and his supervisory officer, it needs no further discussion here. The principles stated in Chart XXXVIII regarding good and bad policies of his superior officer will apply to the director in dealing with his subordinates and the reader can readily make a similar box-head analysis for the latter problem.

CHART XLII

SHOWING MAIN ITEMS OF RESPONSIBILITY OF THE EVENING SCHOOL
DIRECTOR AND HIS STAFF



The third step is to arrange efficient team-play between the director and his staff. Here again the same reasoning and principles

apply which have already been stated for the director and his chief. There should be a listing of activities, a delegation of responsibility for these activities to different members of the staff, and a distinction drawn between full and recommendatory responsibility for each activity such as is shown above in Chart XXXIX. Any director acquainted with evening school activities can readily make from that chart a new chart for himself and staff. It would be a chart showing full and recommendatory responsibility of the evening school staff. The first column of the box head would read "*Responsibilities of the staff*"; the second, "*Full responsibility*"; and the last, "*Recommendatory responsibility*." In distinguishing between full and recommendatory responsibility, the director would be regarded as the chief or final authority for all matters, so far as his subordinates are concerned. Try it!

Some idea of the wide variety of matters for which the evening school director is responsible and for which he must delegate different kinds and degrees of responsibility to different members of his staff may be gained from the chart on page 260.

Space will not permit any detailed discussion of the relations and responsibilities of the director and his staff in connection with all these matters. One illustration must serve: Suppose we take the matter of the supervision of instructors in an evening school system where primarily the director discharges this function in co-operation with the principals of two evening school centers. They might give us the following arrangement:

CHART XLIII

COÖPERATION BETWEEN DIRECTOR AND PRINCIPAL IN THE SUPERVISION OF
EVENING SCHOOL INSTRUCTION

<i>Responsibility of the principal of building</i>	<i>Full</i>	<i>Recommendatory</i>
1. Records and reports of instruction	X	
2. Selection of instructors		X
3. Salaries and wages		X
4. Class and shop discipline	X	
5. Punctuality and attendance	X	
6. Conduct of instructor	X	
7. Discharge of instructor		X

CHART No. XLIII—*Continued*COÖPERATION BETWEEN DIRECTOR AND PRINCIPAL IN THE SUPERVISION OF
EVENING SCHOOL INSTRUCTION

<i>Responsibility of the principal of building</i>	<i>Full</i>	<i>Recommendatory</i>
8. Class-room management	X	
9. Lesson plans	X	
10. Lesson material	X	
11. Course of study		X
12. Methods of instruction		X
13. Teaching equipment and devices		X
14. Promotion of instructor		X
15. Preparation of instructor		X
16. Training in service		X
17. Building regulations	X	
18. School regulations	X	

Organization as a Cost Factor

There are two ways in which an efficient organization of the evening school will affect cost. Better results will be accomplished at the same cost, or the same results will be secured at less cost. Either the service rendered will be improved, or the same service will be performed at reduced expense. These are precisely the motives which make a commercial concern strive in every possible way to systematize its business by defining relations and by delegating definite responsibilities, duties, and adequate authority to heads of service up and down the line organization.

Better results at the same cost.—Generally speaking, a large amount of the money expended by an evening school goes for such fixed cost items as salaries and wages. Very little can be done, or probably should be done, to secure any monetary saving in these. The problem here is to secure better results in educational service with the same outlay. It should require no argument here to support this statement: In any human enterprise, commercial or educational, men do their work better in proportion as they know what they are to do and what their authority is in doing it. The proper organization of the evening industrial school, therefore, is an efficiency device for securing better results in the instruction of student workmen.

The same results at less cost.—Much of the expenditure of an evening school, however, is not for fixed cost items, but for matters in which distinct savings can be secured by good management. Good management requires a good organization in which definite responsibilities for specific cost items are delegated to subordinates and their work in handling these items is carefully supervised. Most of this kind of expenditure is for overhead cost such as fuel, light, power, clerical help, supplies, and many other similar matters. The leaks constitute an invisible overhead cost, and any invisible overhead can be made visible by a proper system of checking. Take light, for example, always a large item of expenditure in an evening school. A proper system of checking for invisible overhead on this item would include all such questions as the following. It is the duty of the evening school director to locate somewhere the duty of studying this problem and all other items of "invisible overhead."

1. Is the most economical system of lighting used that is consistent with good results?
2. Are lights used at times and places where they are not needed?
3. Are lights placed to the best advantage?
4. Is the school penalized by a high demand rate for electricity which could be avoided by different arrangements?
5. Could lights of less candle-power be used to advantage in some places?
6. Are day-school and evening school light services measured on separate meters?
7. If proper reflectors were used, could better light be secured at less cost?

One hardly knows where to locate the cost to the school of confusion, misunderstanding, friction, and failure to discharge responsibility which results because there is a poor organization of the evening school business and the members of its staff do not know their duties or do not have the authority to go ahead with confidence and a clear field in their performance. Thus we may say that the invisible overhead under such conditions takes its daily toll both in results accomplished and in money expended.

The General Evening School

Thus far, we have very carefully refrained from pointing out that in many communities the evening industrial classes do not constitute a separate school, but are held as a part of a general or cosmopolitan evening school. In such a school other courses are also taught, such as commercial, home economics, and regular high school subjects. Obviously there will be only one evening school director who administers the educational service in all these lines. In this chapter and book, attention has been focused on evening industrial classes only, and no attempt will be made to discuss any problem involving any other subject. In our opinion, however, the principles proposed in this and other chapters also apply to the general evening school.

Having established an organization—a set-up of officials and their relations, duties, powers, and responsibilities—the school must be operated under this organization. There must be good inspection and direction, for which good organization only points the way; hence the next chapter on local management and supervision.

QUESTIONS

1. Chart the line organization of your school system, locating in it your evening school system.
2. Draw specifications defining the relationships, powers, duties, and responsibilities of the director or head of this work to supervisory officials and to those of equal rank with himself.
3. Chart the detailed line organization of the evening school work.
4. Draw specifications defining the relationships, powers, duties, and responsibilities of the director to his subordinates and of subordinates to each other.
5. Check the full and recommendatory responsibilities of the director of your evening school, or one with which you are familiar, against the test of such responsibilities given in Chart XXXIX of this chapter. Where your situation differs from the chart, which is right?

CHAPTER XIX

LOCAL MANAGEMENT AND SUPERVISION

According to the dictionary, management means handling, control, *the judicious use of means to accomplish anything*. In managing his evening school, a director must handle its affairs; must control its activities directly or indirectly so that his ideas as to what shall be done are carried out; and must make judicious use of means to accomplish all these activities efficiently so that the best possible service to student workmen is rendered with the funds available. If he is to do this successfully, certain requirements must be met: He must set up a system of control over every important feature or activity of the school; that system must be simple, so that it is easy to operate and not involved and confusing; it must be sure in its workings and results; and it must be based on accurate knowledge of difficulties to be avoided or remedied. Such a system requires, for every matter affecting the efficiency of the school, three things: careful planning, the successful execution of the plan, and a check-up of the results to find whether the plan was correct; whether it was put over properly; and whether it has accomplished its aim in better service to students or less cost in time, effort, and money. Perhaps the best way to illustrate the foregoing statements is by the chart on pages 266 and 267.

There are many matters connected with the evening industrial school that must be "managed," so many that it will not be possible to discuss any of them in detail. About all that can be done here is to indicate what these matters are and treat some of them in a general way, at least far enough to suggest principles and methods in management. They will be considered under five heads: the management of promotion; the management of preparation or starting; the management of operation (the routine of operation); the management of costs; and the management of improvements.

CHART XLIV

COMPARING THE CHARACTERISTICS OF A GOOD VS. A POOR MANAGER OF AN EVENING SCHOOL

Good manager: characteristics

1. Practices the principles of scientific management
2. Has high standards of efficiency in the performance of all activities
3. Has job pride in the workmanlike performance of the management job
4. Accepts the full responsibility for securing results
5. Willing to pay the price to secure efficient results
6. Constantly looking for the troubles that count
7. Has accurate knowledge of troubles to be avoided
8. Anticipates troubles before they happen
9. Plans to prevent troubles before they happen
10. Has accurate knowledge of existing troubles to be remedied
11. Plans to remedy existing troubles
12. Sets up a system of control over activities
13. Provides for the systematic control of every important feature of the work
14. Sets up a simple system of control that is easy to operate
15. System of control sure in its workings and results
16. Makes the management job easy by planning and systematizing
17. Knows how to manage

Poor manager: characteristics

1. Works by the method of "beguess and begosh"
2. Has no standards, or low standards
3. Has no real job pride
4. Does not fully accept responsibility for results
5. Not willing
6. Dodges trouble
7. No accurate knowledge
8. Does not anticipate troubles
9. Does not plan to prevent troubles
10. No accurate knowledge
11. Does not plan to remedy troubles
12. Lets most matters take care of themselves some way
13. Neglects important features
14. Sets up a partial, involved, and confusing system, or none at all
15. Cannot be sure of anything
16. Makes the job hard by failing to plan and systematize
17. Does not know how

CHART XLIV—*Continued*

COMPARING THE CHARACTERISTICS OF A GOOD VS. A POOR MANAGER OF AN EVENING SCHOOL

<i>Good manager: characteristics</i>	<i>Poor manager: characteristics</i>
18. Uses good judgment in the selection and use of means to get things done	18. Does not exercise good judgment
19. Resourceful in the selection and use of means to get things done	19. Not resourceful
20. Puts his plan over thoroughly	20. Does not carry out plans
21. Checks results of plan when carried out	21. Does not check results
22. Measures his own efficiency by the results of the evening school service	22. Has no measure of his own efficiency

Promoting the School

The management of promotion.—By this we mean the handling of those matters which have to do with the prestige and patronage of the school. In the list should be included all such items as advertising and publicity; the follow-up of former students to insure their return for additional courses as needed; special drives for students at times; trade contacts; trade relations; and selling the school and its work to the community.

Advertising varies in kind and amount according to the size of the school and the conditions under which it operates. Private schools, for example, are more likely to advertise extensively than public ones because the regular school authorities are accustomed to deal with youth who are sent by parents to a full-time school about which everybody knows, while the evening school student is an independent worker who usually learns of evening school opportunities only through special publicity of some kind. This takes all such forms as newspaper articles; window-cards; direct mailing cards; circular letters; talks before shop groups; postal cards and questionnaires to former students; radio broadcasting; the posting of notices about courses for a given line of employment under the shop time-clock or on a bulletin-board; and the mailing of bulletins to prospective students, employers, or union officials. Some schools also use cards which are posted on the inside of street-cars. While this is an expensive kind of advertising, it brings results. The advertising, however, which produces most students for the evening school is done by former students who pass the word along that "the school is all right and it pays to go there." Finally, the best advertising is that which produces the best results by bringing the greatest number of interested workmen to the school.

As it will not be possible to go into detail with regard to any of the matters connected with the evening school, it may be well here to indicate the kind of planning, doing, and checking which constitute management by listing some of the most important steps in the *management of advertising*:

1. Deciding the kind of advertising (publicity) to be used
2. Deciding the amount of advertising necessary and possible
3. Deciding the amount of money to be invested in advertising
4. Making provision for this sum in the budget
5. Preparing the copy for publicity (free and paid)
6. Deciding the mediums (free and paid) to be used
7. Making arrangements (free and paid) with these mediums
8. Cultivating sources of free publicity (such as newspapers and trade publications)
9. Checking the carrying-out of all arrangements (free and paid)
10. Checking the results of regular or special advertising (publicity drives)
11. Changing publicity copy or medium as the result of checking
12. Measuring comparative value of different kinds of publicity
13. Altering plan of advertising for next year

Follow-up of former students. Where the evening school is one department of a trade school, one of the most profitable steps in promotion is to conserve the day-school student. This is best done by some arrangement such as a dollar deposit redeemable on application to the office when he checks out. At that time he is informed concerning the evening school course he should take to complete the required work for a diploma. If he has finished the day-school course for any trade, he is urged to take advanced courses in his line provided by the evening school. All former day trade-school students constitute for at least three years after leaving the day-school a profitable mailing list for the customary advertising material. This is equally true of all former students of any evening school for a period of from three to five years.

Winning trade and public support. Of course the strongest asset of the school in securing customers and winning a commanding position for its work is the kind of service it renders. Indeed over a period of years no amount of effort to "drum up" students will avail if the school is doing poor work. "What you do speaks so much louder than what you say, that I cannot hear you." Nevertheless, no school, however excellent its service, can get very far without publicity or without winning the favorable attitude and support of trade groups and the public.

It seems almost unnecessary to say that the evening industrial school must cultivate *the support of both employers' associations and organized labor*. It should always "keep its skirts clear" of

any trade controversies and never take sides or at any time allow itself to be used by either group against the other. And it should treat union and non-union workmen exactly alike. Happily, the evening school which extends the skill and knowledge of employed workers is seldom involved in any controversy, as both employers and unions favor it when it plays fair with both sides. The task of the director both before and after the school opens is to plan carefully a campaign of publicity and of contact with the employers and with the union of each line of employment with which the school is concerned. Obviously, he must use patience and tact in doing this and be resourceful in meeting situations. After all, this is a problem which each director must work out for himself. This is equally true in winning the public support which is often vitally necessary if the evening school is to secure an adequate budget to do its work properly from a regular school-board primarily interested in regular day-schools for youth and hard pressed for funds for the work already undertaken in a growing community.

Starting the School

The management of preparation and starting.—In carrying on any kind of work, the first thing is to draw up a general plan. This is certainly true of the evening school. This plan is usually made during the summer months in order that equipment may be ready and that materials such as bulletins, schedules, and teaching materials may be prepared. This plan usually includes the courses to be offered, length of each course, the cost of courses, the number of instructors to be employed, the equipment to be used, and the approximate cost of the entire work. This plan is submitted to a superior officer for approval. How much detail it contains when submitted varies, of course, according to the degree to which that officer desires to retain direct authority over matters. After the plan has been approved, the budget can be set for the work on the basis of approximate costs.

Getting ready in advance. When the foregoing steps have been taken, the director is in a position to make careful preparation for the opening of the school. Many of the matters with which

he must deal have been discussed in previous chapters to which the reader can readily refer; therefore, they will not be discussed further here. In the following chart, the numbers following items refer to those chapters in which the corresponding item has been discussed in some way. The reader is also referred to the Appendix, where he will find certain forms and blanks used by one school in connection with items 2, 3, 7, 8, 10, and 11 in Chart XLV.

Determining policies in handling problems. There are many matters for which, before his school starts, the director must decide the definite policies he will pursue, varying all the way from advertising trade relations and the like to the handling of instructors and students. A book could be written on these policies alone; all we can do here, therefore, is to list enough problems to illustrate and indicate those corresponding chapters in the book in which some of them have been discussed. In doing this we have also set down, in the chart on page 272, numbers which refer to the appropriate chapter in the book where these policies are in one way or another discussed.

Policies regarding equipment. To some degree, every matter in the above chart has been covered in the various chapters, with the exception of items 14 and 19. Often it is difficult to decide whether to purchase or borrow teaching equipment such as drawings, blueprints, specifications, machines, parts of machines, special devices, and the like. The evening school is in session at the most for not more than about 200 nights, few unit courses operate for more than twenty-five nights, and the typical student seldom takes more than 100 hours of instruction. Many kinds of teaching equipment are required each year for not more than one to three nights as a maximum. Large investments of money in such equipment constitute a large overhead per student hour of instruction. Consequently, as much equipment as possible of this character should be borrowed instead of purchased outright. An abundance of it can readily be secured for the asking. It should, of course, be carefully handled and returned promptly. Obviously, it will always be up to date and practical, and in this way superior to any teaching equipment which the school could provide by purchase.

CHART XLV

IMPORTANT MATTERS OF THE EVENING SCHOOL TO BE PLANNED IN ADVANCE

1. Selecting competent instructors (XIII)
2. Getting instructors at work in advance (XIV, XV)
3. Preliminary meetings of instructors (XV)
4. Courses of study (X)
5. Teaching content (IX)
6. Lesson organization (XI, XVII)
7. Lesson outlines (XVII)
8. Student registration (XX, XIX)
9. Bulletins and announcements (X, XIX, XI)
10. Scheduling courses (XI)
11. Scheduling buildings and rooms (VIII, Appendices A and B)
12. Teaching equipment and supplies (XVI, XVII)
13. Building conditions and facilities (VI)
14. Records, forms, and blanks (XX)
15. Competent evening school clerks (XIX)
16. Defining duties and responsibilities of clerk (XIX)
17. Defining duties and responsibilities of instructional staff (XIV, XVIII)
18. Rules and regulations (X, XIX)

CHART XLVI

PROBLEMS OF THE EVENING SCHOOL REQUIRING THE USE OF DEFINITE POLICIES

1. Relations with superior officers (XVIII)
2. Military or cooperative organization of work of subordinates (XVIII)
3. The delegation of responsibilities (XVIII)
4. Relations with the State Board of Vocational Education and its responsibilities (XXII, XXIV, XXIII)
5. Salaries and wages (XIII)
6. The selection of instructors (XIII)
7. The qualifying of instructors (XII)
8. The training of instructors (XIV, XV)
9. Handling weaknesses of instructors (XIX)
10. Handling weaknesses of other employees (XIX)
11. Training other employees (XIX)
12. Getting functioning subject-matter (IX)
13. Getting and scheduling unit courses (XI)
14. Buying or borrowing teaching equipment (XIX)
15. Rigid or flexible rules and regulations (XIX)
16. Character of evening school discipline (IV, XVI)
17. Fees and refunds of fees to students (XX)
18. Trade and community relations (XVIII)
19. Relations with the regular schools (XIX)
20. Advertising and publicity (XVIII)

Where good day-school shops are available in any building of a school system, the evening school should utilize them for its shop courses in corresponding lines. In practice it is virtually always necessary to add some equipment to the day-school set-up to meet evening school demands. Because of the lack of shop equipment, few evening schools give shop courses in communities where no day trade-school or technical high school or manual arts high school exists. Where they do, the shop courses are limited to the lines they teach. One evening school, with which we are most familiar, uses commercial shops for shop courses which the plant of the school itself is not equipped to teach—a plan which works successfully, reduces the expenditures of the school, and insures the best possible equipment for instruction. All these are matters for which the director must have a definite policy before he can do anything else than flounder about in his planning.

Policies toward other schools. Because the students of the evening industrial school have no other school connections, the relations of the evening school to the regular schools are usually very simple. They are largely confined to working relations in the use of the same building and equipment and between the day or full-time principal and his subordinates and the evening school principal and his subordinates. Here again, policies must be decided before plans can be worked out which will avoid friction, secure coöperation, and enable each school to do its work with the least possible interference with or from the other. No principles can be laid down for use in determining these policies save one: The building and its equipment is the property of the school system which the evening school director has been authorized and instructed to use in carrying out his program, and he must secure the right to use any or all of that property which he finds necessary for his purposes.

Keeping informed from the start about vital facts. If the director is to manage his school on the basis of real information and not guesses, he needs to plan in advance for getting, recording, reporting, and interpreting all information which will help him in "spotting" trouble and in improving the service. He needs a simple system for doing this, but it must be sure and reliable in its work-

ings. Among the vital facts which he should plan to obtain from the beginning through proper forms, blanks, and reports are all such as the following:

1. Attendance on each course by nights
2. Registration for each course
3. Comparative registration and attendance on each course for current and preceding year
4. Monthly expenditures of the school for all such separate items as:
 - a. Salaries and wages of instructors and other employees
 - b. Instructional material
 - c. Other supplies
 - d. Advertising
 - e. Office expense, including clerical service
 - f. Light and power
 - g. Fuel
 - h. Engineering and janitor service
 - i. Other overhead costs
 - j. Outlay for permanent equipment
5. Comparative monthly expenditures of current and preceding year
6. Income by courses from fees and other sources other than appropriation
7. Cumulative expenses from month to month and corresponding budget balances
8. Gross and net cost of courses
9. Student-hour costs for the school, gross and net

Comment. Of the above items, we regard Nos. 1, 2, and 3 as indispensable on the non-financial side of the work of the school, and Nos. 4, 5, 6, and 7 as equally so on the financial side. In a large evening school, 8 and 9 are necessary if the director is to detect those courses which are, figuratively speaking, "eating their own heads off" because of large costs and small attendance. Evening industrial schools will never be able to compare their costs of operation with those of schools in other communities until the gross or net cost, not including equipment, is reduced to a student-hour basis. This is found by dividing the cost by the number of school hours of attendance. In a private school with its own accounting department close at hand, all these financial items are readily obtained. In a public school system, the evening school director should either induce the business department to keep such special ledger accounts as will furnish him with the information, or set up a system in his own office by which all pay-rolls and bills pass through his hands for visé so that he can obtain the figures. Even then he must depend on the business department to furnish him either the actual or estimated costs for such items of overhead as light, power, and fuel. For all these matters, he must set up a policy and think out a way to execute it.

Operating the School

Management of routine of operation.—Let us assume that the director, in coöperation with his staff, has set up a plan—made the kind of preparations we have been describing. He has tried to anticipate and prevent difficulties so far as possible. He sticks to his plan in every phase as long as it works successfully, but he is keenly alive to evidence of any failure to work. Whenever it fails at any point or on any matter, he promptly modifies it. In other words, he has set up a system and insists on following it, but it is a flexible system, responsive to conditions.

His next step is the direction of the execution of his plan. In a very real sense, his task is very much like that of a general who has planned a campaign, provided as far as he could for known contingencies, delegated responsibilities, assigned duties, and coached his subordinates. He believes that his plan, if carried out, will succeed—at least it is the best he can do. Once the battle is on, his first duty is to see that his orders are executed; so he checks up to see if any one is failing to carry out any part of the plan and directs his attention to straightening out the situation. Recognizing that a proper scheme is always vulnerable at places, he looks for holes or gaps and focuses his effort on stopping them. Because of the issues at stake, he is keenly alive to his grave responsibility; therefore he checks himself to find whether he is doing his own part efficiently. These are precisely the demands on the evening school director in directing the operation of the evening school while in session.

The registration of students. This is not only the opening act of the evening school, but, next to the selection of competent instructors, it is probably most vital. The proper advisement with students and their assignment to evening classes is not only a difficult task but a grave one. As working people, they must make many sacrifices to attend. For many it represents the supreme effort of their lives. No care and trouble should be spared in getting them started right. Entirely aside from their interests, the success of any given course depends on whether the students need it and can profit by it. In order that adequate time and attention

CHART XLVII

EFFICIENT ARRANGEMENTS FOR PRELIMINARY REGISTRATION IN AN EVENING INDUSTRIAL SCHOOL

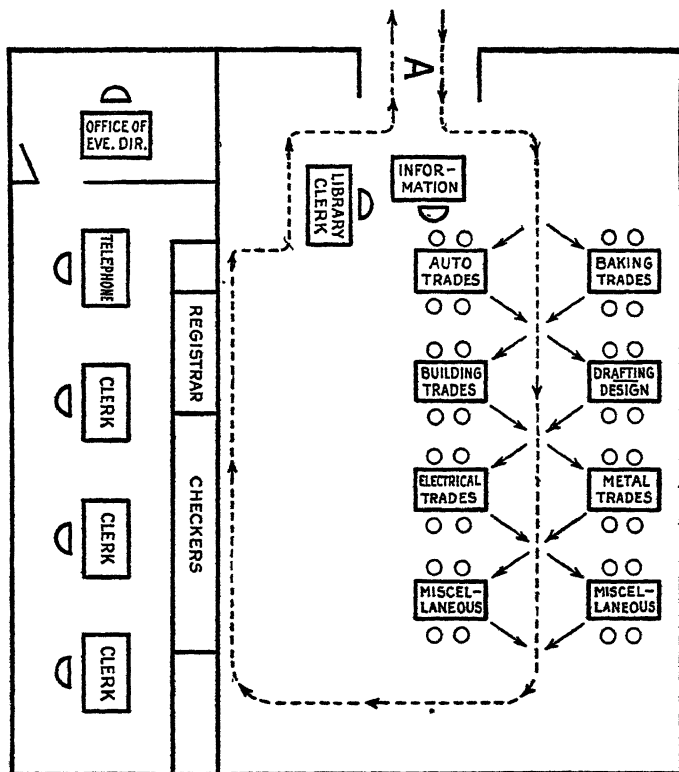
1. School open from 6 to 10 P.M. every night during week before courses begin
2. Publicity to inform and urge prospective students to register during this week
3. Instructors present every night to represent all the various trades and lines of employment for which courses are offered
4. Instructors coached in their duties as advisers of students
5. Instructors grouped by trades for consultation
6. Competent clerical force familiar with the various courses to check application card
7. Clerical force coached in the performance of duties
8. Systematic plan for routing applicants from information desk successively to advisers, checking clerks, and registrar
9. An information desk at the entrance to furnish every prospect as he enters with the bulletin for his trade, schedule of classes, and application card; and to start him on his way by directing him to the place where the adviser or advisers for his line are located
10. Every applicant carefully interviewed by an adviser from his trade or line of employment to get the facts about his previous experience and needs
11. Adequate time taken with each case to "talk it all out," before any decision is arrived at and assignment made; rush absolutely forbidden
12. Adviser, when in doubt, should bring into the conference other instructors familiar with the trade or consult the director or principal

may be given to each case, there should be a week for preliminary registration so as to reduce the rush on the opening night. This preliminary registration should be carefully planned in advance and should be characterized by all such features as those set forth in the chart on page 276.

Perhaps the best way to illustrate a physical plan for the efficient arrangements outlined below is to reproduce here the lay-out for routing students during preliminary registration used by one school.

CHART XLVIII

ROUTING THE FLOW SHEET OF EVENING SCHOOL APPLICANTS



Handling the Flow Sheet of Evening School Students

During the week of preliminary registration, a student enters at *A* and goes to the information desk to receive his application card. He then passes, as shown by the arrow, to the desk for his trade. There he advises with an instructor from the trade, after which he fills out at this desk the application card and has it signed by the instructor. The student then rejoins the line and follows it to the checker's desk, where it is inspected for errors of any kind and viséd. With the line he then moves to the registrar, pays his fee, and receives a receipt. In passing out he halts at the desk of the library clerk, who counsels him regarding the use of the library. Then he goes out at *A* and home to return again on the opening night of his course.

The economical use of the director's time and energy. It must be remembered that as an executive, facing many responsibilities and details, the director is very much like a night foreman on a two-hour to four-hour shift who handles a force of employees which is never the same on any two nights. He could see some of these workmen only one night per week and few of them more than two nights. Some of them he could see during the year on not more than ten nights and exceedingly few of them on more than fifty nights. Some quick and reliable methods must therefore be established by which the director may with the least expenditure of time and effort do all such things as the following: keep in contact with every member of his force; furnish him with information and instruction regarding his duties and responsibilities; provide him with prompt information about changes; make helpful suggestions about his work; check up his performance of his teaching job; detect mistakes and shortcomings; commend good features; and help him with his difficulties.

Burdened with duties, the director, if he is to be a good manager, must also delegate many responsibilities to subordinates and check their discharge of them. In short, he must use every labor-saving device which will enable him to get his job done while leaving him some time and strength to study and plan. Among these labor-saving devices are all such as the following:

CHART XLIX

LABOR-SAVING DEVICES IN MANAGING AN EVENING INDUSTRIAL SCHOOL

1. School bulletins, catalogues, and schedules of classes for each department
 2. Students' application cards and receipts for fees
 3. Stated forms, blanks, and reports for recording and reporting facts by employees
 4. Evening school register signed by instructors and furnishing for each course information about attendance and absences
 5. Report summarizing all vital facts about each course compiled by clerk for the director
 6. Instructors' outline of lesson-plan for each lesson
 7. Instructors' meetings
 8. General rules and regulations (printed)
9. Mimeographed notices of changes in customary procedures and routine matters
 10. Mimeographed instructions and suggestions regarding procedures in new matters and difficult problems
 11. Supervisor's short-form report to instructors checking weaknesses and shortcomings
 12. Supervisor's long-form report to instructor checking and commenting on both satisfactory and unsatisfactory features of his work
 13. Typewritten notices on evening school register where they will be seen by all instructors in signing the same
 14. Written notices on special bulletin-board for instructors

Cost Control

Management of expenditures.—In one sense, this is only one phase of management of the improvement of employees, since the better use of funds is secured by better service, including the expenditure of money; but we have chosen to discuss the subject separately. There is no limit to the ways or extent to which the director of an evening school can by good management "make his dollars buy more." We are not thinking of niggardly policies when we propose that money be saved in some matters, where this can be done without injuring the service, and be spent on other matters where it is more needed. The problem is one of using all the funds available to the best advantage rather than of saving money so as to turn back an unused balance of an appropriation.

Expenditures for equipment. Every evening school budget should provide for some money annually with which to purchase both additional equipment for the work and the equipment required to replace that which is worn out or obsolete. By *equipment* here we mean all the devices used in instruction, from projection machines, films, and slides to shop machines and tools. It will not be possible to do more than sketch various ways by which the outlay for such items can be reduced:

1. Use of commercial equipment by teaching courses in commercial plants. One school has done this successfully with courses in the manufacture of gas, telephony, electric meter repair, and special kinds of printing requiring special and costly outfits. This of course avoids the investment of school funds in such equipment and usually insures more practical training.
2. The special use of plant equipment in connection with courses taught at the school building. Students are taken to the plant to see and study special and illustrative devices. One school has done this successfully with courses in steam engineering, house-wiring, electrical machinery, baking, and in drafting, by visits to inspect types of construction.
3. The use of the day trade-school equipment for evening trade-school courses.

4. The use of consigned or loaned or gift equipment from manufacturers of the same.
5. Special borrowing for a few nights or weeks of all such things as commercial drawings, blue-prints, machines, and tools for demonstration and illustration.
6. Careful investigation, before purchase, of competing machines, tools, and devices.
7. Securing special prices and discounts as an educational institution.
8. Prompt payments to secure discount for cash.
9. Spreading funds by purchasing equipment on favorable instalment payments.
10. Avoiding false economies. Purchasing good quality for long life. Not attempting to teach courses without at least a reasonably adequate equipment.
11. Regular attention to care of equipment (lubrication of equipment).
12. Prompt and adequate repairs.
13. Efficient tool-room service in sharpening and repairing tools.
14. Cooperation with day trade-school in the purchase, use, and maintenance of equipment.

Expenditures for salaries and wages. Items which help to keep down salary expense include having a small but adequate force to meet all ordinary demands and a call staff of special employees for emergencies; definite assignment of duties and responsibilities which will ensure the full use of the time of each employee; and the dual use of people as between the day and evening trade-school by splitting time of an instructor between the two schools. Instead, for example, of employing two different men for the two schools, it is often possible to secure one man at a less cost but at a good wage who goes on duty at 1 P.M. and serves in one or more capacities until 10 or 10:30 P.M. Inspection and supervision will serve to ensure from the pay-roll adequate returns in faithful and efficient work.

Supplies and materials. The director can keep down costs of supplies by anticipation of needs, purchasing in quantity, discriminating purchasing as to quality of material needed for kind

of specific instruction, using lower grade for practice work by beginners as in drafting, and improvement in quality as work progresses. In shop production of a usable kind where students take the article home, they should pay for the cost of the material. Where output is sold as in baking, die-making, toolmaking, and in some automobile, some heat treatment and some show-card writing courses, the material used must, of course, meet customers' demands. The director should also provide for close supervision of use through the viséing of all requisitions by the director, central storage and distribution, and the close checking of small orders for short periods and requisitions.

Light. In order to control the use of lights and therefore the cost of this item, the director must furnish the superintendent of the building a room schedule for each room in the building. This schedule should state the periods when the room is to be used and the time when lights are to be turned on and turned off, including what lights are to be used during the time the class is assembling. This schedule will obviously have to be made out again, because when short units are completed, a room will be used for other and different courses and on a different schedule. Usually any given schedule covers four to eight weeks. In Chapters VI and VII, "Buildings" and "Building Auxiliaries," many suggestions are made as to economies that can be practised in the use of light by the proper selection, installation, and operation of lighting devices.

Power. Continuous line drives for many machines should be avoided by arranging or ganging machines together in sections for unit motor drive. In this way either all the equipment or only part of it can be operated as needed; this would prevent the wasting of power in the operation of idle machines. Individual motor drive costs very much more for equipment and installation, and usually does not save enough in cost of operation to pay the interest on the investment, although admittedly the arrangement is the most convenient. Where light and power are purchased, the school must avoid the penalty rate for exceeding the maximum demand load of current on which its usual rates are based. To do this, the excessive use of current for any given hour must be prevented. As lights must be used, the operation of other electrical

equipment should be controlled by scheduling its use on those nights or at those periods when there is danger that the maximum demand load may be exceeded. See also Chapters VI and VII, "Buildings" and "Building Auxiliaries."

Fuel. To control this item of overhead, the room schedule furnished the superintendent or engineer of the building should give him full information regarding the hours each room is to be occupied and the temperatures required. There should be master control by the engineer of all heating apparatus, and no individual control, for example, of radiators. Recording thermometers should be installed, and there should be close coöperation between the faculty and the office on the one hand and the boiler-room on the other. See also Chapters VI and VII, "Buildings" and "Building Auxiliaries."

Avoiding red tape and lost motion.—Unnecessary paper-work should be avoided and forms and blanks simplified. Useless information should be discarded and deleted from all blanks and forms for the year after its uselessness is discovered. All procedures should be carefully worked out, simplified, and systematized. Duplication of effort should be detected and removed, and too much checking avoided.

Use of the accountant.—The director must know at all times the condition of his funds. To do this, he must rely on the accountant to keep him posted. He must, therefore, work out with that official a simple but reliable form of report to be made, let us say, each month by the accountant which will show all such things as: expenditures and receipts for the month; cumulative expenditures and receipts for the year; unused balances; comparative monthly and cumulative receipts, expenditures, and unused balances of current and preceding year; and special reports on special matters. The two officials must also agree on a form for pay-rolls and provisions for ensuring the proper preparation of the pay-roll by clerks and approval by the director. There must also be team-play between the two men on the prompt payment of bills to secure cash discounts.

Training the force in the economical use of all overhead items.—To do this, these things must somehow be accomplished:

Employees must be educated into the necessity for economy; they must acquire an interest in detecting and remedying waste of any kind; they must take pride in the team-play of the school in fighting waste; they must be made sensitive to the causes and indications of waste; they must know what to do in preventing or correcting waste. To secure these things, there must be leadership on the part of the director in developing the spirit of sound economy and management of efforts to secure it. Among the devices which have proven successful are these:

1. Discussion of the subject at teachers' meetings
2. General rules and regulations
3. Introduction of the team-play idea in eliminating or reducing unnecessary costs
4. Occasional general memos commending, without naming, those who have done especially good work in detecting and remedying waste; specifying things which have been done; and pointing out the opportunities and shortcomings of others as a group
5. Checking waste by the individual, explaining the cause and remedy, and appealing to him for help in dealing with the problem

Improvement

Management of the improvement of the work, of the improvement of the execution of plans for the evening school, is another of the means of saving. There is no such thing as a 100 per cent efficient plan nor is there any such thing as a 100 per cent performance of a plan. There is always room for improvement, and usually plenty of room. We are here concerned only with the task of a director determined to secure as far as he is able the best possible execution of the plans for every phase of the school. Indeed, the only way he can be absolutely sure that there is something wrong with his planning is to see to it that a plan has had a fair test. If it is carried out efficiently but expected results are not secured, he must then of course recheck his plan.

Improvement of employees other than instructors. While the office of the evening school will always contain only a few employees, it is vitally necessary that they do their work properly. As there is no such person available in a community as an experienced evening school clerk, such assistants must be carefully selected for personal

qualities and trained on the job in the particular duties they discharge. The process does not differ essentially from that used in training an instructor on the job, but the skill and knowledge the clerk must have is different.

Clerks must through supervision be trained in all such matters as: the prompt, quick, and accurate performance of both routine and special clerical duties; the gathering, arranging, and reporting of summaries and statistical data; a general familiarity with courses, admission requirements and fees, and recitation schedules; and the ability to deal intelligently with inquiries about such matters. They need most of all to have an interest in and a sympathetic understanding of both student workmen and the aims, policies, and plans of the evening school for helping them. Patience, tact, and a genuine desire to help the students and "make the school go" make the office a place where students like to go for information and special advice instead of fearing it. There is only one way to obtain this kind of office help and that is by elbow-to-elbow dealing as with a shop apprentice. They must be educated "piecemeal." Every new duty must be explained and demonstrated clearly; its performance must be checked; and shortcomings must be corrected. For every special or important matter, there should be worked out a systematic procedure, and this should be committed to writing for use as reference, guide, and check. Since office assistants must serve to some extent in the place of the director when he is absent, they also need to study thoroughly the evening school bulletins and be checked on the accuracy of their knowledge regarding policies and courses. Where additional clerks are employed for the week of preliminary registration, they must be specially coached for their duties. All the foregoing statements apply also to all other employees, such as engineers, janitors, and accountants.

Developing men. Any executive gets ahead in his work no faster than he is able to carry his "gang" with him. He might have the most excellent ideas in the world as to what should be done but still fail because his subordinates would not or could not put over his plans. It is equally true that an evening school director may even be an authority on the methods that should be used to train

an evening school staff of employees and yet fail to get results because he does not know how to lead, win, and teach men. His ideas may be all right, but he falls down on the personal and human side of his job. This applies just as well to the training of instructors, particularly on the job, as to the training of all other employees. It will not be possible to discuss this vital matter here but only to set down in the form of a chart some policies which have proved successful. (See Chart L on next page.)

No devices used in the management and supervision of an evening industrial school are more revealing or more vital than the students' records, reports, and forms it uses—a subject treated in the next chapter.

QUESTIONS

1. If you are the head of the evening schools of a community or teach in one, check the management of those schools against the twenty-two characteristics of a good vs a poor manager given in Chart XLIV of this chapter. Rate the management against these characteristics on a maximum scale of 5 for each characteristic and then reduce the final score to a 100 per cent basis.
2. Check the procedures in your evening school, or one with which you are familiar, against the efficient arrangements for preliminary registration given in Chart XLVII of this chapter. Check your procedures against these twelve arrangements on a maximum scale of 10 for each arrangement and then reduce the final score to a 100 per cent basis.
3. Check the procedures of your evening school or one with which you are familiar against the labor-saving devices in management listed in Chart XLIX of this chapter. Check your procedures against these fourteen labor-saving devices on a maximum scale of 10 for each device and then reduce the final score to a 100 per cent basis.
4. Check the policies and procedures of your evening school, or one with which you are familiar, against the twenty-one efficient policies in the development of evening school employees given in Chart L of this chapter. Check on a maximum scale of 5 and then reduce the final score to a 100 per cent basis.
5. Discuss this topic: What are the arguments pro and con as to the relative merits of a military and a coöperative scheme of managing an evening industrial school?

CHART I

EFFICIENT POLICIES OF A DIRECTOR IN THE DEVELOPMENT OF EVENING SCHOOL EMPLOYEES

1. Take a personal interest in every employee.
2. Consider every suggestion for improving any feature of the service and take some action regarding it.
3. Recognize good work and faithful service, and make your approval known to those who do it.
4. In dealing with any employee about instructions, suggestions, criticisms, shortcomings, or improvement, shape the plan of handling him according to his known characteristics and peculiarities.
5. Be loyal to your own force and everybody on it if you expect loyalty in return.
6. Don't play favorites or harass particular individuals. Give every employee an absolutely square deal.
7. Don't gossip about any employee or listen to gossip about him. Get the facts if necessary for yourself, and keep them to yourself.
8. Inculcate the idea of team-play or partnership in the mutual performance of an important service in which everybody counts. Every employee "belongs" to the school, and therefore the school belongs to him.
9. Be courteous to every employee and never under any circumstances humiliate him.
10. Boost whenever possible. When you criticize, find if possible something to commend at the same time.
11. Don't scold groups of innocent employees for the shortcomings of individuals.
12. Help instead of discourage. Build up instead of tear down.
13. Work personally with any individual in the attempt to help him improve the performance of his job.
14. Be patient, and don't lose your head.
15. Take all the time necessary to help any employee with troubles and shortcomings. Get him started right again and then check him to see that he goes right.
16. Avoid "calling down" an employee except as a last resort.
17. Talk things over. Get the employee to admit his own shortcomings, lack of knowledge of rules, etc. Have him agree to the facts before you attempt to help him.
18. Ask him such questions as "What's the trouble?" "Am I to blame?" "Whose fault is it?" "What's the cause of the trouble?" and "What can I do to help you?"
19. Make the employee think. Put him through a process of reasoning. Get him to see his own mistake, and admit it. Ask him why he does it; and why he is not getting along.
20. Ask him what is his plan to bring about a cure of his troubles and what he proposes to do about them.
21. Practise the policy of the open door—open to all employees at any time for conference about any matter.

CHAPTER XX

STUDENT RECORDS, REPORTS, AND FORMS

Like any other business, the evening school carries on a considerable amount of paper work which it has found necessary in order to get things done. It employs certain forms and blanks as devices for putting over its scheme of organization, administration, and supervision; consequently these illustrate very faithfully the procedures of the school, and therefore reflect in a very direct and concrete way its plans. For still other reasons also, these blanks vary greatly as between schools: They vary according to the size of the school itself. In a large school, to illustrate, correspondence would be employed for checking the absence of pupils, whereas in a small one this matter might be handled over the telephone.

Variations result because of difference in the degree to which this, that, or the other matter is checked. One director, for example, will require every instructor to prepare in advance of every lesson an outline of the steps he proposes to cover, while another regards this as "red tape." Modifications also come about because of differences in the ideas of different directors as to the facts this, that, or the other form of record should furnish. Some want very detailed information about students while others tend to reduce it to those items which have been found helpful in their own schools. For all these reasons, every school must work out its own salvation, and there is no such thing as a standard set or a best set form of records for all schools.

In every case, however, blanks must be employed, and the skill shown in devising and using them has much to do with the efficiency of the work. Because of this and because forms and the way they are used provide probably the clearest illustration of the operation of a school, this chapter undertakes by means of them to trace the career of Mr. I. M. Worthy, as a student in a certain evening school.

The School Career of Mr. I. M. Worthy

Makes application.—Mr. Worthy has never attended the school before. In some way—newspaper, radio, window-card, a notice under the shop time-clock, a suggestion from a fellow-workman or former student, or the like—he has learned that the school provides training in his line. On sending for a special bulletin covering the courses in his trade or line, he discovers a unit course or courses that he wants and the time when each begins. Going to the school, he talks matters over with the director or one of his assistants, after which he fills out a buff-colored card (see pages 290–291). The entries below the black line on Form 1-A are made by employees of the school, all others by Mr. Worthy.

Visits a class.—Mr. Worthy, after his interview with the school official and after filling out the application card, is requested to visit the class in which he has decided to enroll. For this purpose a pass is issued to him (size 3 x 5). Mr. Worthy is then in a position to determine whether or not the work of the class he is visiting is what he wants. In exceptional cases, this device is also used to permit a student to attend a class temporarily when the office has agreed to wait a reasonable time on him for the payment of his registration fee. The school seldom loses in granting such a favor, and the student need not forego the training until he can pay his fee. This procedure is a great help in advising students regarding courses to pursue. Usually the limit of courtesy attendance on a pass is a period of not to exceed two weeks. This pass is a form (No. 2) on which these items are entered: name of Mr. Worthy, of the course to be visited, and of the instructor in charge; the date issued; the name of the person issuing the pass; and a place for remarks if needed and for the initials of the instructor to show that the pass was used.

Files application and pays fee.—When Mr. Worthy has made out his application (Form 1 and 1-A), he presents the card at the registration desk, where the entries are completed as on Form 1-A on page 291. This constitutes a visé of his application, which is retained and filed in the office. He then pays the evening school clerk the registration fee for the course, for which he receives a

Form No. 1
(Size 6 × 4)

The William Hood Dunwoody Industrial Institute
EVENING SCHOOL APPLICATION

READ CAREFULLY

I hereby apply for registration as an Evening School student in the Dunwoody Institute, and will pay \$6.00 as a registration fee together with all other special fees, when this application is accepted. I also hereby understand and agree that only \$1.00 of this fee is to be refunded to me. I further understand that the receipt must be presented within 30 days after I leave school or I forfeit the \$1.00 refund.

Receipt Numbers

..... Last Name First Name Middle Name Date.....19.....
Present Address..... Telephone No.....
Permanent Home Address..... City.....
Date of birth—Month..... Day..... Year.....

Schools Attended	Grade Completed	Where
Grade School
High School.
Other Schooling

Form No. 1-A
(Reverse side of Form No. 1)

What is your trade?.....			
.....	Name of firm by whom now employed	Address	
.....			
Kind of work now doing.....			
For which course do you wish to enroll? (for Unit No. see Bulletin).....			
What are your reasons for taking this instruction?.....			
.....			
Have you attended Dunwoody classes before?	What year?.....		
How did you first learn of Dunwoody?.....			
Do not write below this line			
Accepted by.....	Approved by.....	19.....	
Department.....	Unit No.....	Evenings.....	
Department.....	Unit No.....	Evenings.....	
Department.....	Unit No.....	Evenings.....	
Remarks:.....			
.....			
.....			

FORM No. 3

A · B

Evening School Registration Fee Receipt

The William Hood Dunwoody Industrial Institute

NON-TRANSFERABLE No 1239

Admittance Slip to Evening Classes, 1929-30 No 1239

Minneapolis, 1929-30

Name _____ Date 1929-30

Received of

Mail Address _____

SIX DOLLARS (\$6.00)

Course _____

Unit _____

Instructor _____

To apply on lesson sheets and covers, laboratory and other materials. A refund of one dollar only will be made on presentation of this receipt when approved, if presented within 30 days after student has been checked out of school.

Evenings { Monday Thursday
Tuesday Friday
Wednesday Saturday

Room No. _____

Absolutely no refund will be made without this receipt

Entered also in course _____

The William Hood Dunwoody Industrial Institute

Remarks _____

Enrolled by _____ Instructor's Signature _____

By _____

Admitted to class (date) _____

Approved for refund _____

NOTE—Absolutely no refund will be made on this receipt after May 15, 1930
(over)

Instructor's Notice—Slips A and B should come to you attached. You are to detach B and return A to student. B is to be signed and returned to office the same evening as received.

receipt which is issued in duplicate, the yellow duplicate being retained by the office clerk and used by him in accounting for moneys received. (Book form of fifty duplicate receipts, size 10 x 3 $\frac{3}{4}$.)

Receives receipt for fee.—When Mr. Worthy presents the foregoing receipt to the proper instructor, the instructor detaches Slip B and returns Slip A to Mr. Worthy as his evidence of money paid, and the registration is completed. The instructor then fills out the last three items on Slip B and returns it to the office at the close of his class. By numbering each receipt as above each student is automatically given a number which he retains and by which he is designated throughout the year for all record purposes, such as checking out tools, getting library books, and the like.

Is checked up on absence.—If Mr. Worthy is absent two consecutive evenings, a self-addressed return postal card is sent to his home or other address designated by him, in order to learn the cause of his absence and his intentions. This method of checking absence also provides information as to why students leave the school. A student will sometimes send in a written complaint about the work, should there be any, when he will not voice his protest at the time of checking out. One side of the postal (Form No. 5) calls attention to Mr. Worthy's absence from school several times, expresses the hope that he will continue his school work, and requests him to reply on the return postal card. When he does this, he states in answer to printed questions these facts: reason for absence; reason for dropping the work; intention to return and when; if not returning, the date on which he will call at the school office and check out.

Sometimes transferred to another course.—Should it happen that Mr. Worthy, after trial, does not fit into the unit course to which he has been assigned, a very rare happening, he is sent to the office by his instructor and a transfer slip is issued. This slip is made out in duplicate, one copy being sent to instructor No. 1 from whose class he is transferred and the other to instructor No. 2 of the course to which he is transferred. These instructors sign these respective slips and return them to the office. The office then issues a roll-call card (Form No. 4, size 4 x 6) for Mr. Worthy and sends it to his new instructor. This form is also used

FORM No. 4-A

REVERSE SIDE OF FORM No. 4

EVENING STUDENT'S RECORD

Unit No.	NAME OF UNIT	Date		Lessons Completed	Unit in Progress	Lessons Attended	Credit		Instructor's Opinion of Student. Mark—Excellent, Good, Fair, Poor.	
		Unit Began	Unit Ended				Strike out Yes or No	With Distinction	Attitude	General Ability
							Yes No			
							Yes No			
							Yes No			
							Yes No			
							Yes No			
							Yes No			
							Yes No			

Left School:

Reason:

Transferred (date)

To (course)

Reason:

Remarks:

if the student changes his line of employment after entering the evening school. He is then transferred to work which will meet his changed occupational needs. It may be used also if the class attendance is such that the unit course is discontinued and the student is transferred to another course or courses.

This transfer slip (Form No. 6) is numbered in consecutive order; is dated; bears the student's name and home address; gives the name of the course he has been taking and the night or nights it is in session; gives the name of the course to which he is transferred and its session nights, the name of the new instructor, and the shop or room where the new course is held. Places are left for a statement of the cause of the transfer, the date of admission to the new course, and the signature of the new instructor.

Included in instructor's final report.—When Mr. I. M. Worthy successfully completes, along with his fellows, his unit course, the instructor reports his name along with those of other students, who have also earned the credit (Form No. 7, letter size). This form is designed to furnish information on many important items which the office needs to know as a summary of the work of the unit course.

This instructor's report on a course must be filed within five days after the close of each course. It provides for these entries: name of instructor, date, name of course, date of beginning and of ending, hours per evening, number of evenings, number on roll at beginning and at end of course, number withdrawing, number receiving and not receiving certificates, number with 100 per cent attendance, total number of nights of attendance by all students, number of nights of attendance by each student, and average number of students in attendance. On the reverse side of this form the instructor reports the names of all students who are to receive certificates, the grade of each student, and each student's mailing address.

Notified of credit given.—As soon as the office receives the instructor's unit report (Forms 7 and 7-A), it sends to I. M. Worthy a notice that he has successfully completed the unit and is to re-

ceive at the close of the year a certificate of credit for it. This is sent to him in the name of his instructor so as to maintain the connection between them and as a device to encourage him to continue with other units. This notice (Form No. 8) is made out in duplicate, one copy being retained by the office. This notice specifically names the exact unit he has completed successfully, tells him a more formal certificate will be issued later, and asks him to notify the office if there is any mistake in the spelling of his name so that this certificate may be made out properly. (Size $5\frac{1}{2} \times 8\frac{1}{4}$.)

Checks out.—When Mr. Worthy has completed the courses for the year in which he enrolled, he is ready to leave the school. Being ready to check out, he fills out the following checking-out card. On presenting this card to the evening school clerk, it is checked and if it registers dissatisfaction, Mr. Worthy is interviewed in order to learn the real cause. Since students are constantly checking out for various reasons throughout the school year, this card gives the school officials an opportunity to adjust difficulties. Frequently this results in the transferring of a student to another course or in satisfying him regarding the one he has been taking. Obviously this gives the director another check on the efficiency of the instructor. This device also gives the office a chance to talk over the next year's work with the student, to advise him regarding advanced courses and the like. This places the school official in a position to meet each student when he enters and again when he leaves, thus checking with the customer (the student) the success of past service and the possible need of future service. To distinguish it from other forms this checking-out card is of an orange color (size 6×4). See Form No. 9, page 298.

Deposit fee returned.—By referring to Form No. 3, the reader will note that Mr. Worthy paid a registration fee of \$6.00, one dollar of which is refundable to him on checking out. This was a bait to require him to come to the office in order that he might be interviewed. He has in his possession also a receipt evidencing this deposit of one dollar. On presenting his receipt (Slip A of Form No. 3) and his checking-out card after it has been approved, he has returned to him a dollar. This checking-out scheme has

FORM No. 9

Dunwoody Institute Evening School

CHECKING-OUT CARD

Receipt No.....
 Name.....Date.....
 Address.....City.....
 Name of Course.....Unit No.....
 What Unit Courses Have You Completed?
 Were You Satisfied with the Instruction?
 Reasons for Leaving
 Library.....Tool Room.....Check Room.....
 Instructor.....

(Do not write below this line)

Receipt Redeemed.....Refunded \$.....
 Remarks:
 Approved.....

stood the test not only in this particular school but, so far as we know, everywhere it has been used. (Size $4\frac{3}{4} \times 3\frac{3}{4}$.)

FORM No. 10

(Reverse side of Form No. 3—Part A)

<div>Minneapolis, _____ 1929-30</div> <div>Received of</div> <div>The William Hood Dunwoody Industrial Institute</div> <div>ONE DOLLAR (\$1.00)</div> <div>as refund on Evening School Registration Fee</div> <div>Signed _____</div> <div>Address _____</div>
--

Commencement exercises for Mr. I. M. Worthy.—At the close of the year, Mr. Worthy is notified of and invited to attend a special meeting in his honor and to bring his wife or best girlfriend with him. (Form No. 11.)

Certificate received by mail.—Because of the large enrolment of this particular school, no attempt is made to distribute certificates and diplomas to several thousand Mr. Worthys at any public gathering but these are sent through the mail at the close of the school year.

This certificate (Form No. 12, size 9 x 11) simply states that the holder thereof has completed satisfactorily the unit course or courses listed by name, together with the number of hours of attendance provided for each course. It is, of course, signed by the authorized officials of the school. The more formal diploma is conferred only when the student has completed a general course consisting of a collection of unit courses, each of which is listed.

Permanent record at the school.—Mr. I. M. Worthy may or may not return again. He may come back year after year as many Mr. Worthys do. In any event, there are on record at the school

the facts about him which the school has found it advisable to make permanent so that it can keep track of him, fit new courses for him to old ones, and answer inquiries about the character of his work as a student. Because of the size of the card ($9\frac{1}{2} \times 11\frac{3}{4}$), the use of a reverse side and the detail it presents regarding attendance, it has not been thought advisable to reproduce this permanent record card here. It is possible to state here, however, the questions the card (Form No. 13) will answer regarding Mr. I. M. Worthy:

1. The trade in which he was employed while a student
2. The kind of work he was doing in the trade (what his occupation was)
3. The name of his employer
4. The unit courses for which he received a certificate
5. Whether he received a diploma or not
6. With regard to each unit course for which he registered:
 - a. Total hours attended and in what months
 - b. When he entered and withdrew
 - c. Causes of withdrawal
 - d. Attitude, ability, and character of work as a student
 - e. Instructors' special notes or comments

Special Forms for Special Cases

Special notice by mail.—Occasionally a student leaves an application card for a unit course which has not as yet been started or is doubtful. It may be, also, that the school is investigating him as a prospect. In either case, it will find use for a postal card notifying him that the course is to be given and that it will start on a given evening, at a stated hour, in a certain room or shop. (Form No. 14.)

Inquiry as to intent.—Sometimes a student files an application but does not appear to register as notified. In order that the school may learn whether the student intends to enroll, a double or return postal card is useful, one side of which calls his attention to his failure to register and asks him to state on the return postal whether or not he plans to enroll and if not, the reason. (Form No. 15.)

Follow-up where course wanted is not given.—In order that the school may not lose a single customer, if this is avoidable, it is

sometimes necessary to suggest another course to a student where the one for which he applied is not started for lack of students. For this purpose a double postal card is used, one side of which informs him that this course will not be offered and calls his attention to another unit course in his line which will be offered on stated evenings at stated hours. He is requested to visit the suggested course and to indicate by the return postal whether he is interested. (Form No. 16.)

Summary.—In this chapter, the most important forms and blanks employed in the handling of a student by one school have been treated. Doubtless, as a whole they apply to only that school, at least without modification; some devices are used that other schools do not use; some are absent which other schools do use. The material presented is entirely tentative and suggestive but it does indicate those matters in the career of an evening school student which the writers believe are handled most effectively and economically by carefully planned paper-work. These matters are set forth in the following chart:

CHART LI

HANDLING EVENING SCHOOL STUDENT MATTERS WITH APPROPRIATE FORMS AND BLANKS

<i>Steps in the school career of the student</i>	<i>Forms in this chapter for these steps</i>
1. Visits a unit course before enrolling	No. 2
2. Makes application for a course	No. 1 and 1-A
3. Application is approved	No. 1-A
4. Receives combined receipt for registration fee and admittance slip	No. 3
5. Assigned to the instructor of this course	No. 3
6. Presents slip to instructor, who separates and returns receipt to student	No. 3
7. His admittance slip is signed by the instructor and returned to office	No. 3
8. His roll-call card is issued to the instructor by the office	No. 4
9. His roll-call card is used as a record of attendance and progress during the course	No. 4 and 4-A
10. His roll-call card is returned to the office at the close of the year	No. 4 and 4-A

CHART LI—*Continued*HANDLING EVENING SCHOOL STUDENT MATTERS WITH APPROPRIATE FORMS
AND BLANKS

<i>Steps in the school career of the student</i>	<i>Forms in this chapter for these steps</i>
11. Is reached by return postal card inquiring about cause of absence and intentions	No. 5 and 5-A
12. Is sometimes transferred to a more suitable unit course	No. 6
13. Is included in the instructor's final report of students who have received credit for the course	No. 7 and 7-A
14. Receives notice from instructor that he has satisfactorily completed a course	No. 8
15. Fills out a check-out card on leaving the school	No. 9
16. Interviews when deemed advisable the director or his assistant	No. 9
17. Receives his deposit fee by returning original receipt	No. 10
18. Receives invitation for himself and friends to attend closing exercises in his honor	No. 11
19. Has school certificate mailed to him, evidencing unit courses satisfactorily completed	No. 12
20. Has permanent record made of his case at the school	No. 13
21. Starts all over again the next year	Repeats all steps

Special Cases

22. Makes application for a course, and the case is taken under advisement	Form No. 14
23. Application accepted, but does not appear to enroll	Form No. 15 and 15-A
24. Makes application in advance for a course which is not established, but could profit by another course	Form No. 16 and 16-A

Having confined the book thus far to local matters, we now come to the problems connected with the coöperation of the federal and State governments and local communities in the establishment and operation of evening industrial schools.

QUESTIONS

1. Check the twenty-one steps in the school career of the evening school student proposed in Chart LI against those used in your school or one with which you are familiar. What steps in the chart are, in your opinion,

not necessary in a small evening school of, let us say, less than 500 students? What steps, if any, would you add?

2. Compare the students' records, reports, and forms in your school, or one with which you are familiar, with those illustrated in this chapter. What items on the different forms which are herein illustrated are not given on your corresponding form? What items are omitted from the forms herein illustrated which are included in your forms? What forms are not used by your school? What forms are used by your school which are not proposed in this chapter?
3. Time is required to make, file, and keep track of such records, reports and forms as are illustrated in this chapter, and time costs money. Can they be justified in spite of their cost on the ground of efficiency in results? Can they be justified from the standpoint of costs?
4. What are the arguments for and against an "earnest money fee" in the evening industrial school? for and against a small deposit to be returned on checking out?
5. Can the commencement exercises of an evening industrial school be made successful from year to year when measured by the attendance of evening school students? If so, how?

CHAPTER XXI

THE FEDERAL GOVERNMENT TAKES A HAND

In 1917, Congress passed the Vocational Education Act, establishing through federal appropriations three funds to be used by the States in the development of agricultural, home economics, and industrial education. One fund which by a step-rate arrangement increased to \$3,000,000 annually in 1926 was to be applied to agricultural education only. This fund was allotted to the States in proportion to their rural population. A similar fund was to be used for industrial and home economics training. This was allotted to the States in proportion to their urban populations. One dollar of every five received in this latter fund must be used for home economics, if used at all. This now amounts to a maximum of \$600,000 in all the States, leaving \$2,400,000 for industrial training. Of this amount, one-third or \$800,000 must be applied to part-time instruction for employed youth, if used at all.

This leaves a maximum of \$1,600,000 for day-school and evening school instruction in trades and industries, all or any part of which received by any State may be expended for either service. In general, the money can be used only for the salaries of teachers, and for every dollar so used, the State or local community or both must expend at least another dollar for the same purpose. All other costs must be met by the State or local community or both. Such is the general set-up under what is familiarly known as the Smith-Hughes Act. Stimulated by it, the total registration in evening classes for adults in the trades and industries increased from 46,333 in 1918 to 97,574 in 1927.

The safest policy is to consult the State board.—Any person who becomes responsible in any way for promoting, establishing, or operating a public evening school giving extension training in evening classes to employed persons needs to know a number of things about this coöperation between the federal government and

his State in the support of such classes, and these we have undertaken to point out in a general way below. At the same time, he needs to be cautioned at this point about relying exclusively on any statement made in this chapter about any point. Nothing more is attempted than to furnish him with certain helpful information. He needs to recognize that this information is not official and therefore, for his purposes, not authoritative.

From time to time in its discretion, the Federal Board for Vocational Education as the agency responsible for the administration of the Congressional grants for industrial education may modify its policies, standards, and rulings regarding evening industrial schools. At stated or irregular intervals, State Boards for Vocational Education submit detailed plans to the federal board, which if approved bring about changes. Furthermore, these State boards and their representatives have within a large field of discretion under these plans certain theories, opinions, policies, and even changing rates of reimbursement, which they are trying to work out in local communities. Under all these conditions, the safest thing for any man responsible for any local venture is to go directly to the responsible agents of the State board for authentic information, reliable rulings, and safe direction. For the questions he asks these agents, this chapter may give him helpful suggestion.

Eight Vital Questions

Naturally enough, there are a great many questions which the responsible officer for a local evening industrial school, such as a director, needs to have answered by the director of the State Board for Vocational Education or by the supervisor of industrial and trade education for the State, or by the State agent for evening industrial classes in those States where there is such an official. It will not be possible even to catalogue here those that have to do with matters connected with federal aid for such schools. Among them, however, would be all such questions as the following. (This first step is sometimes taken by correspondence and sometimes by a personal interview.)

1. I am interested in establishing an evening industrial school in my community which will qualify as a Smith-Hughes

school and be a part of the State system of vocational education under the State board. What steps do I take to accomplish this?

The State agent will probably answer that this is done by establishing evening extension classes for persons employed in industry which meet the requirements of the State plan as approved by the federal board.¹

2. What are these requirements?

The State agent will usually reply that these are completely covered by general provisions in an official publication of the board, a copy of which is furnished the local official, who is asked to go over it carefully and then ask for additional information or for an explanation of points not clear. Usually in a personal interview, the main features of these requirements are described, such as the extension character of these classes, the restriction of the enrolment in any class to those already employed in the line of work for which the class gives training, the legal qualifications required for instructors, the minimum and maximum size of classes, and the like. Inasmuch as such standards and requirements are fully discussed at various other points in this book, they will not be treated here.

3. If such a class is established, will it receive any State or federal aid?

To this, the State agent usually replies, "Yes, if the work as carried on meets the requirements of the State board, but only as reimbursement for a part of the expenditures of the local community."

4. How much aid will we receive?

Always the State agent will answer, "Nothing for plant and equipment or for their maintenance or for administra-

¹ On this subject the federal board has published three bulletins as follows: Bulletin No. 17, "Trade and Industrial Education, Organization and Administration," 1918; Bulletin No. 18, "Evening Industrial Schools," 1918; and Bulletin No. 20, "Buildings and Equipment for Schools and Classes in Trade and Industrial Subjects," 1918. In the Trade and Industrial Series of the Board, these Bulletins are Nos. 1, 2, and 4 respectively. They may be obtained from the Government Printing Office.

tion or for any other cost than the salaries of instructors." In those States where funds are most available, the assurance may be given that from State and national funds taken together, one-half of the salaries of instructors will be reimbursed. In a few States where no appropriation has been made to match or supplement the federal funds, the reimbursement will be from federal funds only. As has already been stated, every federal dollar used on a local school must be matched by another dollar coming from the local community or the State or from both taken together. The amount of federal moneys expended in the school can never be more than half the total expended for the salaries of teachers, but it can be less than half and in some States is much less than half. In some States the large number of centers of industrial education makes it necessary to distribute the federal moneys for teachers' salaries on something less than a fifty-fifty basis. Sometimes also the amount of State aid which is available reduces correspondingly the federal aid used in the local community.

5. If we establish an approved evening school, what rights do we surrender to the State?

The State agent answers, "None at all. You are at perfect liberty to decide either not to operate any evening industrial school or to conduct one which is not approved by the State board for reimbursement. If you maintain an approved school, you run the show just as in the other two cases. The only difference is that you have declared your intention to carry on the work in such a way as to secure reimbursement. We have agreed, let us say, to grant this if your school in operation meets requirements which the State board has set up in plans which the federal board has approved as providing for the kind of evening industrial school work for which, under the law, federal money may be expended. The agents of the State board will visit your school as a going concern to see whether it is carrying out the specifications agreed upon between you and us for the work. If it is, you will be reimbursed as agreed."

6. Will the representative of the board who inspects my school tell my teachers what to do?

The State agent answers "no" at once. This representative would deal officially only with the designated official of the local community responsible for the work of the school. "He would, of course, visit the school usually, if not always, in company with this local official. He would be free to ask questions of any instructor necessary to get facts and understand the plans and methods used. He would not make comments favorable or adverse to subordinates, but would freely point out as an inspector those points at which the school was failing to meet requirements or lacking in efficiency and offer any suggestions or information which he found the local director willing to receive. Always, however, it would be kept clear that the only real question at issue was whether the school was carrying out properly the service for which it expected reimbursement, if satisfactory."

7. What about the relations of me and my staff to the Federal Board for Vocational Education?

The State agent replies at once that the responsibility of the local community is to the State Board for Vocational Education, and even there it is only a responsibility for living up to requirements to which the local community has undertaken to conform. "A sort of contract has been set up on which the State board agrees to reimburse approved work and the local community has agreed to carry on work that meets approval. But the federal board has no connection with the local community whatever."

There is not even a contract between the federal board and the local community for any work. It is true that there is a somewhat similar contract or agreement between the federal board and the State Board for Vocational Education in which the former, acting for the national government, offers the latter, acting for the State, an annual sum of money for industrial education on two conditions, (1) that this State board set up a plan or scheme of industrial

education for the State which has been approved by the federal board; and (2) that the State board sees to it that none of this money is expended on any work which does not meet the specifications agreed on in this plan. Just as the State board deals only with the responsible local official, so the federal board deals only with the State board as the responsible party in the use of federal moneys on local industrial evening schools.

Occasionally, agents of the federal board visit local schools. Inasmuch as they are not inspecting local schools as such, but only the work of the State board as exemplified by the local school, such federal agents are virtually always accompanied on such local visits by the State agent. In the helpful working relations between the two agents which exist practically everywhere, the federal agent is entirely free to ask questions of the local director and his staff in order to get a true picture of the work of the school, but his comments and criticisms if he has them, are made to the State agent only as the representative of the responsible party with whom the federal board deals. A contract exists between the two parties, and the federal board would in the case just described be simply taking steps to learn whether the contract was being faithfully carried out by the State as a condition of reimbursement.

8. How much visitation may I expect from State and federal officials?

To this the agent answers, "With the great and constantly increasing number of centers of industrial education in this country, it would be impossible for the small staff of field agents of the federal board to visit all of them in a generation, even if such a plan were undertaken. You probably will never see an agent of that board in your school. So far as the State agents are concerned, the matter is up to you."

The director can deal with the State board on either a strictly official or a coöperative basis. If the former, then its agent will formally inspect your school every winter and

probably only once. If it meets requirements, you will be reimbursed; otherwise not. By this plan, you take all the risk. On your own responsibility, you establish and operate a service which you hope will be reimbursed, but take your chances regarding approval. This, of course, you may do and entirely without prejudice. By dealing with the State agent on a cooperative basis, you make reimbursement certain in advance. In such a coöperation, cordial working relations would be established in person and through correspondence. Through frequent visits, friendly inspection would detect shortcomings early and the agent would, out of his State-wide experience, be able to furnish helpful suggestions for the improvement of any serious defects in the service.

Standards in the Vocational Education Act

Since federal moneys are appropriated to the States for the support of vocational schools and classes, it is necessary for Congress to safeguard the expenditure of this money by reasonable minimum regulations which we here call standards, and to charge the federal board with the duty of seeing that these standards are observed by the States in the use of the funds allotted to them. These standards as set forth in the Vocational Education Act are of two kinds—mandatory and discretionary.

Mandatory standards.—As the board must administer the act in exact conformity with its terms, there is no choice to be made or discretion exercised in dealing with these mandatory provisions. For example, the board is charged with seeing that the instruction in all subjects taught under the act shall be of less than college grade, and that evening schools shall not admit persons under sixteen years of age, and shall give only such training as is supplemental to the day employment. Modification by the board of such requirements is impossible.

Discretionary standards.—About other matters named in the act, the board is required to make decisions in the discharge of its responsibility and in this way to establish standards. It must, for example, approve of the minimum qualifications of teachers

CHART LII

MANDATORY AND DISCRETIONARY STANDARDS FOR EVENING INDUSTRIAL SCHOOLS
(PROVIDED IN THE VOCATIONAL EDUCATION ACT)*Mandatory standards*

1. Must be under public supervision and control
2. Must fit for useful employment
3. Instruction must be of less than college grade
4. Pupils must be over sixteen years of age
5. Instruction must be confined to that which is supplemental to the day employment

Discretionary standards

1. Necessary plant and equipment required as a minimum to be determined by State board and approved by federal board
2. Amount expended for maintenance, required as a minimum, to be determined by State board and approved by federal board
3. Qualifications of teachers required as a minimum to be determined by State board and approved by federal board

for different kinds of vocational education and different types of vocational schools and classes. The law does not say what these qualifications shall be, but requires the board to say.

Obviously the board is entirely free at any time to change any discretionary standard, but not any mandatory one.

Advice to objectors.—Should there be any person responsible for a local evening industrial school who objects to any of the above mandatory provisions, he must remember that they are imperative because they are stated in the national law. Consequently, he is wasting his time when he indulges in loud criticism of the federal board or of the State board regarding these provisions. He may want to admit persons under sixteen years of age, but this cannot be done in classes using federal money. The authors regard such a proposal as absurd, because all experience has shown that employed youths under sixteen years of age are neither ready for evening school instruction nor physically able to attend after a day's work. Nevertheless, the only recourse would be to establish classes entirely at local expense to which such youths would be admitted—either that, or else enter upon the difficult task of having the Vocational Education Act amended.

Another person may want to train novices for a new industry or trade through evening school; hence he objects most bitterly to the requirement that the instruction shall be supplemental to the day employment. Instead of denouncing the State and federal boards, he should operate his classes at local expense or change the act. Perhaps the most difficult situation which has arisen occurs whenever the local officials attempt to sandwich into an evening trade extension class persons who have had no experience in the trade and are not employed in it—all this in a futile attempt to prepare them for a job. If the instruction meets the real needs of the experienced workmen of the class, the novice is clearly wasting his time and effort. Here again, the local community, if it wants to do this, should admit these novices, but pay the whole bill—either that, or else get Congress to agree and modify the act.

On the other hand, the above discretionary standards regarding the evening industrial school are always open to criticism and to

change. They are decisions which must be made by the federal board, but it will be noticed that the usual path is that they are proposed by the State board and approved by the federal board. In the end, they represent a meeting of minds between the two boards regarding the minimum of plant and equipment for any evening school on whose work federal money should be risked, the minimum budget of such a school, and the minimum qualifications for teachers. Any one is free to dissent from these minimums as set for any State, but his path in stating his objections is straight to the State board and its representatives, since, presumably at least, the standard was initiated there.

Discretionary standards as constructive safeguards.—An examination of these standards for evening industrial classes as set forth in the chart above shows that they deal with questions—plant and equipment, budget, and qualifications of teachers—that could not be regulated by the act in any mandatory way. Yet they are all matters that needed to be safeguarded somehow. To permit federal funds to be used by any evening industrial school “which is unable to provide at least the minimum facilities necessary to successful training, spells failure and waste of effort and money in advance, not to say anything about the discredit upon the whole movement sure to result. This is equally true whenever a school or class is established without the necessary funds for the proper maintenance of the work, including adequate salaries for competent teachers.”²

“Specific standards for all these matters could not, however, be defined in the act for a number of reasons: 1. The requirements as to facilities and teachers vary widely in kind and grade as between the fields of agriculture, home economics, and the trades and industries. 2. They also vary enormously in kind and grade as between occupations in the same field. 3. The number of occupations for which federal moneys can be used under the act is probably in excess of 3,000, no two of which present the same requirements as to plant, equipment, cost of maintenance, or teachers. 4. The situation is further complicated by the fact that

² C. A. Prosser and C. R. Allen, *Vocational Education in a Democracy* (The Century Co., New York, 1925).

the training for many of these occupations differs in kind and grade according to the locality, and aims of the school, and the experience and ability of its students. 5. The character and demands of many of these occupations are constantly changing, with corresponding changes in the character of training and the standards of training. 6. New occupations are constantly arising not in existence when the law was drawn. 7. Occupational conditions and standards vary greatly from one locality to another. 8. Educational and economic conditions and standards vary greatly from State to State. 9. When the Act was passed, the States varied just as greatly in their status or condition of progress, some having well-defined public systems of vocational education and some having virtually no work of this character within their borders. 10. Finally, allowance has to be made for the progress of States in their conception of the work and the development of their plans and, therefore, for a corresponding rise in their ideas as to what constitutes effective vocational training for different fields and groups.”³

The Main Questions for Boards Regarding Evening Industrial Schools

In closing, it may be well to enumerate the main questions concerning evening industrial schools with which national, State, and local authorities are concerned:

The main questions for the national authorities to answer in the use of federal moneys on evening industrial schools are three in number: 1. Whether this school is legally qualified under the act, that is, does it meet the legal or mandatory requirements for such schools? 2. Whether supervision and inspection of the school is properly maintained by the State Board of Vocational Education responsible for the use of federal money in the school. 3. Whether the courses it offers are carried on in conformity with the plan as agreed upon between the federal and State boards?⁴

³ Prosser and Allen, *op. cit.*

⁴ These questions are paraphrased from a discussion of the same subject for all forms and types of vocational education given by Prosser and Allen in *Vocational Education in a Democracy*, pp. 433-435, inclusive.

The main questions for State boards regarding evening industrial schools are these: 1. Is the State plan for these schools one that will secure the best results, taking into consideration the progress of the work and the conditions to be met? 2. Is this plan for evening industrial schools one which can be successfully put into effect? 3. Are State supervision and inspection of evening industrial schools and classes properly maintained? 4. Do the evening industrial schools and classes applying for federal moneys meet the legal requirements of the Vocational Education Act? 5. Do the courses carried on by these schools conform to the plan of the State board which it has agreed with the federal board to execute?

The main questions for local authorities desiring or expecting to receive federal moneys as reimbursement for expenditures on evening industrial schools include all such as the following: 1. Have allotments of federal funds been made to the State which can be used for the kind of instruction which our evening school gives? 2. Is the school legally qualified to use federal moneys under the Vocational Education Act? 3. Are its courses for which it proposes to use federal moneys carried on in conformity with the plan of the State board which the federal board has approved? 4. Is the work of the school approved by the agents of the State board? 5. Does the State supplement the federal allotment with appropriations from the State treasury for the same purposes? What is to be the basis of evening school subsidy and the total amount of aid received from the school from both State and national sources?

This discussion of the part of the national government in the program of publicly supported evening industrial schools leads naturally to the much more intimate and active part played by the State Board for Vocational Education and its representatives, to which the three closing chapters are devoted.

QUESTIONS

1. In the early days of the Vocational Education Act, much criticism was directed by some educators against the restriction in that act that the instruction in local evening classes using federal funds should be supplemental to the day employment of students. Was this criticism well founded?

2. Why have any restrictions or conditions on the States in the expenditure of federal moneys for vocational education?
3. Under the Vocational Education Act, the expenditure of federal funds in local communities is confined to the salaries of teachers. Why not permit the local communities of the States to use the money for buildings, equipment, and overhead?
4. Should local boards of education write the Federal Board for Vocational Education for information, rulings, or suggestions? What disposition should the federal board make of such communications?
5. Does the Vocational Education Act constitute an interference with the autonomy of States and of local communities within States in the control and operation of evening schools?

CHAPTER XXII

STATE ADMINISTRATION OF LOCAL SCHOOLS

It is, of course, recognized that many evening industrial classes are maintained by private institutions such as plants and endowed schools. Here and there, too, such classes are operated by local school systems without any State or federal aid. Nevertheless, it still remains true that most of these classes are a part of some State system of vocational education. It seems advisable, therefore, to give some attention to the part which the State plays in their administration and supervision. In this connection the attention of the reader is called to the discussion in Chapter XXI, "The Federal Government Takes a Hand."

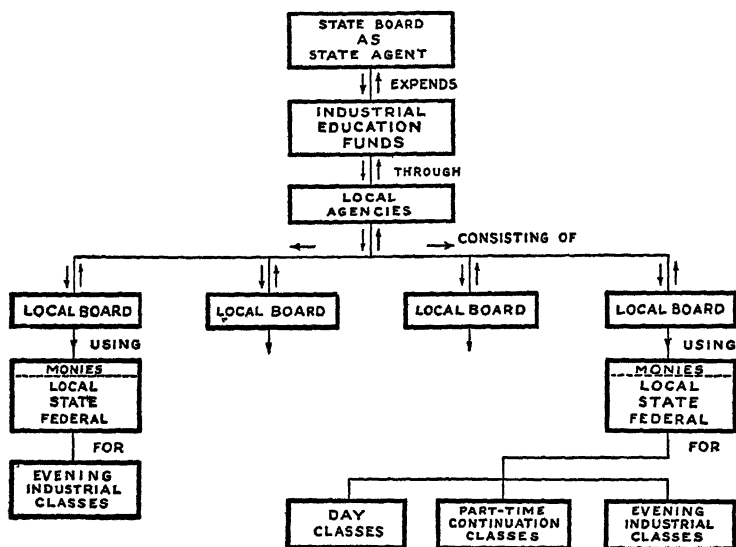
In virtually all the States some federal money is received annually to be expended, under the conditions of the Vocational Education Act, for industrial and trade education, one form of which is the extension training of persons already employed in industrial occupations. In most States an annual appropriation is made by the State with which to match, or help to match, every federal dollar expended by local communities for the salaries of teachers of approved industrial and trade classes. Where this arrangement exists, the joint subsidy of State and federal government usually provides for about two-thirds of the salaries of teachers, leaving the local community to meet all other expenses.

The real subject of State administration and supervision.—In any event, the State Board for Vocational Education administers a fund out of which any subsidy for such classes is paid. If the State appropriates money to supplement the federal allotment, then the board administers a joint fund. Where the State does not do so, the board administers the federal fund only. As a result, the whole problem of the State administration and supervision of public evening industrial classes centers around the responsibilities which it has undertaken regarding these funds.

The real purpose of State administration and supervision.— If there were no federal funds to expend and no special appropriations by the State, then there would be neither a State Board for Vocational Education nor any special relations between the local community and the State regarding industrial education. It is these funds which have set up the special problems in administration and supervision which are discussed in this chapter. What we are concerned with, therefore, is the administration and supervision of federal and State moneys by State boards so as to insure the most effective use of them.

CHART LIII

SHOWING THE RELATION OF STATE AND LOCAL BOARDS IN THE OPERATION OF LOCAL EVENING INDUSTRIAL CLASSES



Comment on the chart. As general agent, the State board, as shown by the descending arrows, is primarily responsible for the expenditure of certain funds (State and federal). It therefore must set up, to illustrate, the conditions which local boards, as agents, must meet in the use of these funds for evening industrial classes, let us say; see to it that the local agent meets these conditions; and aid this local agent, as every general agent should, in the

efficient conduct of this local enterprise. A local board is free either to undertake or to refuse to serve as an agency for the use of these funds. If it so undertakes, it must accept the conditions set up by the general agent for the local expenditure of such funds; propose a plan for approval to be followed in the use of these moneys; carry out this plan efficiently; and cooperate with the State board in the improvement of the work. This is the meaning of the ascending arrows.

General agent and local agent.—If the reader will keep in mind the relations that exist between any concern and its agents, particularly those agents who operate on a commission basis, he will see the analogies between these relations and those set forth below for the State board as general agent and the local board of education as local agent. It is, of course recognized by the reader that both these agents discharge most of their responsibilities through paid representatives. For the purposes of this chapter, we are more particularly concerned with the responsibilities of the general agent or State board such as are outlined in the chart on following pages.

Administrative vs. supervisory responsibilities.—In other chapters, the difference between these two kinds of responsibilities and duties are discussed more at length. See Chapters XVIII, XIX, XXI, XXIII, and XXIV. For our purposes here, it will be sufficient to point out that in current discussion among vocational educators this distinction is drawn: As general agent for the use of moneys which it controls, in evening classes, the State board has two broad functions to perform. One is to create the conditions as far as possible under which a local board as the local agent may perform its work successfully, that is, operate evening industrial classes efficiently. The other is to improve the work. The first function is largely administrative in character and the second largely supervisory. Broadly speaking, the first eight duties and responsibilities of the general agent listed in the first column of the following chart (LIV) are primarily administrative: those numbered IX to XV, inclusive, are primarily supervisory duties and responsibilities.

As has already been pointed out, the State board discharges most of its responsibilities through paid employees. For the sake

CHART LIV

AN ANALYSIS OF THE RESPONSIBILITIES FOR LOCAL EVENING INDUSTRIAL CLASSES OF THE STATE BOARD FOR VOCATIONAL EDUCATION

General agent (State board)

- I. Defines the job which the local agent is to do—operate a certain type of evening classes
- II. Defines the conditions under which the local agent may use the subsidy for the support of these classes
- III. Assists the local agent to promote local support for these classes

Local agent (local board)

- I. Makes sure that it fully understands, before accepting, the kind of evening classes it is undertaking to establish and operate
- II. Makes sure that it fully understands, before accepting, the conditions under which these moneys may be used
- III. Calls upon the general agent to assist, so far as helpful, in promoting community support of these classes
- IV. Calls upon the general agent to assist in establishing classes
- V. Expects reimbursement for approved work only
- VI. Receives reimbursement as repayment of expenditures involved in the approved performance of the duties of agent
- VII. Renews the agency relation from year to year if results are satisfactory to the local community
- VIII. Cooperates with the general agent and with other local agents to secure needed legislative relief
- IX. Welcomes and coöperates in this inspection as the basis of efficient and continued relations

- IV. Assists the local agent to establish these classes as a going concern
- V. Approves the work as a condition of reimbursement
- VI. Reimburses local agent for expenditures as agreed upon between the two boards
- VII. Renews this agency relation from year to year if conditions justify and funds are available
- VIII. Coöperates with local agents to secure legislation necessary to proper working conditions and the expansion of the service
- IX. Inspects the work in order to see that the conditions of approval agreed upon by both agents are met by the local agent

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CHART LIV—*Continued*

AN ANALYSIS OF THE RESPONSIBILITIES FOR LOCAL EVENING INDUSTRIAL CLASSES OF THE STATE BOARD FOR VOCATIONAL EDUCATION

General agent (State board)

- X. Inspects the work for the purpose of improving it
- XI. Assists the local agent to secure the working conditions at the start necessary to efficient service by these classes
- XII. Assists the local agent to correct unsatisfactory conditions (features)
- XIII. Assists the local agent to improve the quality of the service of these classes
- XIV. Assists the local agent to promote and extend the service of these classes
- XV. Assists the local agent to secure the best results possible in evening school instruction from the money expended

Local agent (local board)

- X. Welcomes this inspection and coöperates in the effort to improve the weaknesses it shares
- XI. Calls upon the general agent to assist, in so far as helpful, in securing efficient working conditions
- XII. Calls upon the general agent to assist in improving unsatisfactory conditions
- XIII. Looks to the general agent to assist in improving the work
- XIV. Calls upon the general agent to assist, in so far as helpful, in promoting and extending the work
- XV. Calls upon the general agent, in so far as helpful, for assistance in accomplishing this aim

of simplicity, we have postponed the consideration of their respective duties and relations to a later place in this chapter. It is also true that many of the statements of principle and policy made below would apply to other kinds of industrial schools, and many of them also to other forms of vocational education, such as agriculture and home economics. Here, however, we have focused all discussion on the one activity with which the book deals—the evening industrial school.

Evening industrial classes a very important part of the State program.—Both the social justice and the economic wisdom of this service and the comparative numbers already reached by it justify the serious attention of any State board to the promotion and improvement of this service. For the fiscal year 1927–1928, the Federal Board for Vocational Education reported a total of 114,629 persons, male and female, enrolled in federally aided evening industrial classes. More than one of every eight persons reached by federally aided schools in all forms of vocational education—industrial, agricultural, and home economics—were served by these evening classes. Their total enrolment exceeded that of all other kinds of classes, except those of the compulsory continuation school, and was double the enrolment of the all-day preparatory industrial schools and the part-time trade extension schools taken together. Since 1918, the numbers instructed in evening industrial classes have increased 225 per cent, an average of more than 20 per cent each year. No other voluntary form of industrial education yields such large results in increased attendance when special attention is directed to its extension and improvement, and probably no other form of industrial education yields such direct, immediate, and compensating returns in improved skill and knowledge.

Clearing the way.—The State board is performing administrative functions whenever it does the things which clear the way—sets up the conditions under which local boards can do their work better. When the State board helps to secure legislation removing traditional restrictions on the education of adults at public expense, it discharges an administrative responsibility, and likewise when it conducts a State-wide campaign for evening extension

classes for employed workmen or when it inspects the evening classes of a community in order to learn whether they are meeting conditions—are, so to speak, “on the right track.” Acting as a snow-plow to remove difficulties, the State board is administering, but when helping to improve the existing service being rendered by a local board, it is supervising. In the following paragraphs, some of the administrative responsibilities of the State board regarding local classes are discussed. These are taken from the foregoing chart (LIV) and are given Roman numbers corresponding to those of the chart:

I. Defining the job of the local board as local agent.—We are very strongly of the opinion that both in writing and in conference the latter should be given a very clear and explicit description of precisely the kind or kinds of evening industrial classes on which the money from the State board as general agent may be expended as reimbursement. If this is done, there will be no disputes later as to personal veracity or regarding the meaning of words or phrases. More important still, the local board will assume an agency for the use of these moneys with its eyes open, knowing fully just what it is undertaking to do. This clears away doubt, uncertainty, and misunderstanding. What is meant by defining the job?

The job to be done is the operation of evening industrial classes in the community. But not any kind of class or of evening industrial class can receive subsidy. The moneys from the State board can be expended only on the kind of classes which the board in the exercise of its responsibility under the law wants established and maintained by local communities. Consequently, the State board, as general agent, must describe, must set up, the general specifications for these classes in order to ensure the use of its funds of them and on no other kind. To answer the question, What are the characteristics of approved evening classes? we believe that the State board should furnish all local boards and the people of the State generally such explicit statements as those given in the following outline, and that these statements should be accompanied by appropriate illustrations which are omitted here for lack of space.

CHART LV

OUTLINE OF STATE BOARD SPECIFICATIONS DEFINING APPROVED EVENING INDUSTRIAL CLASSES

The _____ State Board of Vocational Education proposes to expend a portion of the fund for industrial and trade education which it holds, and which it has received from State and federal appropriations, to pay a part of the salaries of teachers in approved evening industrial classes established and operated by local boards of education. Those approved classes must conform to the following specifications:

1. They must give industrial and trade instruction and not general education.
2. The instruction must be of less than college grade.
3. Instruction shall be given only in those subjects which will increase skill or knowledge in some occupation, trade, employment, or line or lines of employment.
4. The purpose of the instruction in any class shall be either to give a learner *increased skill or knowledge in the occupation* which he is following or to give him *skill or knowledge leading to promotion* in the industry or calling in which he is engaged.
5. No person under sixteen years of age shall be admitted to these classes.
6. Only persons who are employed or who have been employed shall be admitted to such classes.
7. No person shall be admitted to any class who has not had previous experience in an occupation or trade or line of employment for which the class gives instruction; this experience must be sufficient to enable him to understand and profit by that instruction.
8. Generally speaking, courses shall be offered separately for each trade or line of employment, and persons from each trade or line shall be grouped separately in classes for instruction.
9. Whenever any class is composed of a mixed group of workmen engaged in separate and distinct trades or lines of employment, the burden rests upon a local board of proving that all these students can secure usable skill or knowledge from the proposed instruction. (Where classes composed of mixed groups are approvable, these should be defined and explained.)
10. Classes must be operated after working hours.
11. Classes may be for any number of hours, but must be held for a period of time sufficient to teach efficiently whatever the class undertakes to teach.
12. The total enrolment of students per shop instructor shall not exceed _____ students and per class instructor shall not exceed _____ students. (Here also should be given any special restrictions within these enrolment limits, for different kinds of classes and shops.)
13. Any local board should submit for approval in advance any such class as that proposed in paragraph No. 9.

In order to avoid misunderstandings, the following additional information is provided regarding these classes:

1. Local boards are, of course, entirely free to decide not to operate the kind of evening industrial classes just described.
2. If they do undertake to operate them, they must meet the foregoing specifications or fail to be reimbursed for expenditures incurred in maintaining them.
3. Evening industrial classes for preparing novices for employment in industry are not included in the kind of classes on which the funds in the hands of the State board will be expended.
4. Local boards are entirely free to provide such classes for novices if they believe them to be needed and efficient in producing desired results.
5. They should not expect such classes, however, to be supported by the funds of the State board, as they are not the kind of classes for which State and federal moneys have been appropriated.
6. Local boards are entirely free to operate evening industrial classes composed in part of experienced workmen in the employment or line of employment for which instruction is given and in part of novices.
7. If any local board operates such a class, it should be supplied entirely by local funds, as such a class does not meet the foregoing specifications for approved classes of the State board.

II. Defining the conditions governing the job.—In addition to describing the kind of evening classes which will receive subsidy, the local agent is entitled to know from the State agent precisely the requirements under which these classes are to be conducted and reimbursed. All the reasons that require the first kind of information apply also to the second. What is meant here can best be illustrated by the matters covered in the following chart:

CHART LVI

OUTLINE OF SPECIFICATIONS DEFINING THE CONDITIONS GOVERNING APPROVED EVENING INDUSTRIAL CLASSES

In the discharge of its responsibility for the use of State and Federal Funds, the State Board of _____ proposes to reimburse Local Boards for expenditures on such classes subject to these conditions:

1. The establishment and operation of local evening industrial classes does not per se create any right or equity of any Local Board to receive any subsidy whatever from the State.
2. Reimbursement from the State Board is conditional upon the final approval by the Board of local classes as going concerns.

3. This final approval will be based on the reports and recommendations of the representatives of the State Board regarding these features of the work:
 - a. Qualifications of teachers
 - b. Conditions as to building and building equipment
 - c. Amount of money expended (budget) for the support of the evening school (classes)
 - d. Courses of study
 - e. Personnel of students by classes as to age and occupations (employments)
 - f. Number of students enrolled by classes
 - g. Teaching equipment (industrial material, demonstration apparatus, tools, machines, etc.)
 - h. Methods of instruction
 - i. [Here should be added any other features (items) of the work on which inspection and approval are based.]
4. In the foregoing list of features which the State Board will take into consideration in passing upon the approval of any local evening class, the five which are numbered from a to e constitute matters upon which the State Board has set up certain policies and standards which have been approved by the Federal Board of Vocational Education as necessary for any evening class on which Federal moneys are expended. Local Boards must therefore see to it, as a condition of reimbursement, that the requirements of the State Board on these features are met so that the contract of the State Board with the Federal Board may be faithfully carried out and so that State funds also may be efficiently expended. The other two features in the preceding paragraph (methods of instruction and the teaching equipment) have been added by some State Boards as items which are vital to the efficiency of such evening classes and which, though not covered specifically, are implied by the Vocational Education Act.

Standards of approval

1. The instructors must have at least these qualifications: (State them.)
2. Where it seems advisable or necessary to employ any instructor whose qualifications in any respect fall below this minimum, the case should be submitted and approved in advance of employment.
3. While the State Board recognizes that conditions arise where it is necessary to employ an instructor in advance of approval, the safest rule to follow, as far as possible, is to have the qualifications of the members of evening staff approved or certified before the class starts. (If certification is used, explain the regulations and standards.)
4. In passing on these quarters and equipment, the State Board will observe the following principles and policies regarding the matter which on its

recommendation were approved by the Federal Board for Vocational Education.¹

5. Because of the kind of classes, the conditions found in buildings and the demands on equipment, it will be necessary for each local evening industrial school plant or plants and its facilities to be approved separately as suitable places for such classes.
6. The safest procedure of the Local Board is to have this approval made as far as possible in advance of the establishment of classes.
7. No local center will be established where the Local Board proposes to expend annually as a total budget for maintenance, a sum less than _____, which is the minimum recommended by the State Board and approved by the Federal Board.
8. The courses of study must be filed with the State Board in sufficient outline form to show the subject matter taught. The following rules and standards have been adopted by the State Board in passing upon the question of whether this subject matter constitutes functioning skill or knowledge for employed workers.
9. All students of each class must be over sixteen years of age and they must either be employed in or experienced in occupations such as to establish the presumption that they can understand and use the instruction given.²
10. The maximum number of students in charge of one instructor shall not exceed _____ for ordinary classes, _____ for laboratory classes, _____ for drawing class, and _____ for shop classes.
11. The question of whether any given class is equipped with at least a minimum of teaching facilities necessary for effective teaching is one to be determined as a fact by the responsible representative of the State Board dealing with representatives of the Local Board.³
12. The question of whether any given evening class is employing efficient or inefficient methods of instruction is to be determined by the representatives of the State Board.

Rules for reimbursement.

1. None of the moneys received from the State board can be applied to any other item of expenditure except instructors' salaries.
2. The local board must meet with local funds all other costs of every kind.
3. The financing of the local enterprise must be so arranged that, for every dollar of federal money expended, there will also be expended another dollar from public moneys, either of the local community or of the State or of both.

¹ See Federal Board for Vocational Education Bulletin No. 17, Trade and Industrial Series No. 1, 2d edition, March, 1929, pp. 16, 38, 43, 90, 95, and 103.

² See Federal Board for Vocational Education Bulletin No. 17, Trade and Industrial Series No. 1, 2d edition, March, 1929, pp. 16, 27, and 35.

³ See Federal Board for Vocational Education Bulletin No. 17, Trade and Industrial Series No. 1, 2d edition, March, 1929, pp. 11, 16, 19, 38, 89, 95, and 103.

4. Private funds contributed by citizens can of course be used, but they cannot be made an offset to the requirement described in the preceding paragraph.
5. The funds of the State board will not be paid to any local boards as an advance payment to be utilized in meeting the current operating costs of any class, but only as reimbursement for moneys expended on approved evening classes after such classes have completed their schedule.
6. In general, reimbursement payments for approved classes will be made annually on or about the _____ day of _____.
7. For the year _____, the amount of moneys paid by the State board to any local board will be determined by multiplying the total expenditures in dollars for the salaries of teachers of approved classes by _____.
(This announcement would of course be made only in those States where the subsidy was uniform as between communities, however different their conditions. The policies of the States differ widely regarding this matter.)
8. Moneys received from the State board as reimbursement for expenditures incurred in the operation of evening classes during any given fiscal year must be applied to such expenditures and not be used to meet the costs of operation in any succeeding year or years.

Formal vs. cooperative dealings with local boards.

1. Any local board, if it so desires as a matter of policy, may deal with the State board in either a formal or a more cooperative way. (If the first or formal plan is not used by the State board, items 1 and 2 would not appear.)
2. A local board may establish and operate evening industrial classes entirely without any supervisory contact with the State board and ask that such classes be formally inspected and approved or disapproved annually by the State board for purposes of reimbursement.
3. A Local Board should through its representatives cooperate closely with the State Board and its representatives for the establishment and operation of approved evening classes. Only by efficient cooperation can the two Boards discharge their responsibility for the legal and efficient use of public funds on such classes and for the promotion, expansion and improvement of the service. (End of specifications.)

III. Assisting the local agent to promote local support for evening industrial classes.—The autonomy of the local board or its right to manage its own affairs should be respected at all times both before and after the establishment of classes. Assuming close cooperation between the two agencies, the State board and its representatives can help to clear the way by all such services as these:

1. By conducting a special State-wide campaign of publicity regarding the need and the justice of such classes for em-

ployed adults, using as advisable all such devices as the newspaper interview, the radio, the public address before State gatherings, a pamphlet written in popular style for the layman, and the like

2. By visiting the local community on the request of the local board and taking part in a local campaign of somewhat the same character, when this plan of securing support seems advisable or necessary
3. By appearing before the local board to present the cause of the evening industrial school
4. By supporting the representative of the local board in conferences with the officials of local employers and employers' associations, local chambers of commerce, and the like

IV. Assisting the local board to establish classes as a going concern.—On the request of the local board, this assistance could be rendered by the State board by all such means as:

1. Serving as a State clearing-house of information regarding similar classes already being operated by other communities in the State or in other States
2. Providing special information regarding all such matters as buildings, building auxiliaries, building equipment, the recruiting of students, selecting instructors, instructional material and devices, courses of study, methods of instruction, and records, forms, and blanks
3. Giving the local board the benefit of the pooled experience of the State office and other local communities regarding important problems and difficulties which arise
4. Answering questions through officials of the State board regarding the interpretation of that board's previous announcements regarding evening industrial schools
5. Making special rulings in advance on the special proposals and problems of the local board

V. Inspecting the work to see that the conditions of approval are met.—This duty is fully discussed in the succeeding chapter on supervision.

VI. Approving the work for reimbursement.—For the scope of this book, this item has probably been sufficiently treated.

VII. Reimbursing local boards for approved schools.—Local boards are reimbursed at the time and at the rate previously agreed upon between the State and local boards. This is an automatic fiscal act.

VIII. Reviewing the agency relation from year to year between the two boards.—As all arrangements are for one year only, local boards need to know early all such information as the following:

1. Has the work of the classes been approved?
2. If not, what must local boards do to secure approval for another year?
3. If not approved, is the State board ready to enter into an arrangement for another year?
4. Was the work of the approved classes of the local board fully satisfactory?
5. If not, what was unsatisfactory or requiring improvement for another year?
6. How can the unsatisfactory features be bettered?
7. If evening industrial classes are to be operated for another year in coöperation with the State board, what changes, if any, has the State board made in the conditions and standards for such classes?
8. What is to be the basis and rate of reimbursement from the funds of the State board?

IX. Coöperating in securing legislation for the benefit of evening industrial classes.—As the State board has assumed a leadership for vocational education of secondary grade in the State, it has a responsibility for the evening industrial school just as great as for any other form of industrial education and of vocational education in general. In discharging this responsibility, the State board may discover the need for legislation which will improve the working conditions, have a bill drafted and call on local boards to support it. It is clear, of course, that very little legislation of this character would deal with evening industrial schools only. Not only are the interests of day, part-time, and evening industrial classes usually involved in the same legislative measure, but sometimes those of agriculture and home economics also.

Where a local board in larger communities operates not only

evening industrial classes but evening home economics classes and day or part-time (continuation) classes in one or both of these fields, that board would of course usually be interested in the proposed bill. In many instances, however, evening industrial classes are maintained by local boards in communities where no day or part-time classes are provided. Nevertheless, such local boards need to join hands actively with all other local boards in support of any legislation which is designed to advance the common cause of vocational education for wage-earners, farmers, and homemakers of the State. In these pioneer days of the movement, it is well to realize that we must either hang together or hang separately. We need to pull together—"one for all and all for one."

Among the illustrations of the kind of legislative activity through which the working conditions may be improved for vocational education in a State, a few instances are cited. (Sometimes, however, it may be best not to attempt the repeal of obsolete statutes but rather to let well enough alone.)

1. Modifying all laws which interfere with the use of public moneys for the education of adults
2. Securing the adoption of an enabling act which authorizes the making of annual appropriations by the legislature to be used along with federal moneys for the reimbursement of the used expenditures on approved vocational schools and classes
3. Securing a larger appropriation to the State board so that it may have a budget sufficient to meet its important and growing responsibilities for the promotion and improvement of all forms of vocational education in the State
4. Resisting and defeating all efforts to repeal existing legislation for vocational education or to modify it in any injurious way

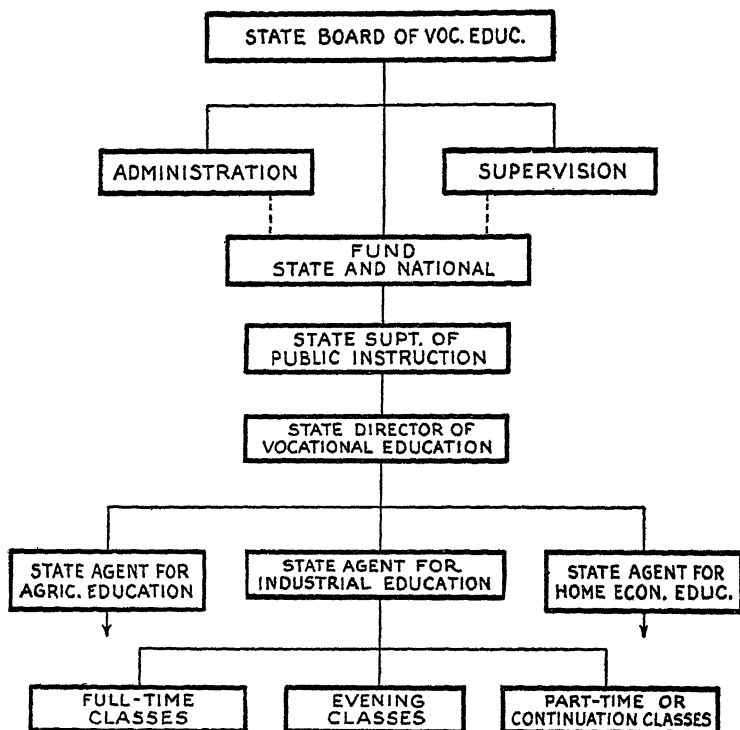
Organization

Thus far but little has been said about the officials of the State board through which it discharges its administrative and supervisory responsibilities. This was done in order to avoid confusion and to emphasize the fact that, in the last analysis, the State program for evening industrial schools is carried on between two

boards—one State and one local—who are primarily responsible for the joint enterprise. In reality, both boards serve almost entirely in a judicial capacity, listening to the recommendations of the officials whom they have selected; rendering decisions with regard to policies; and making rules and regulations to carry out these decisions. We are here concerned with the staff organization of the State board for the performance of its responsibilities. In another chapter, that of the local board will be considered (Chapter XVIII). Probably the best way to picture this staff organization is by a chart.

CHART LVII

SHOWING STAFF ORGANIZATION OF STATE BOARD FOR ADMINISTERING
AND SUPERVISING APPROVED VOCATIONAL SCHOOLS



Comment. The foregoing is the customary scheme in the sense that it is found in more States than any other, but it is by no means universal. In all but Wisconsin and Colorado, the State superintendent of public instruction, or State commissioner, as he is sometimes called, serves as the executive officer of the board. In Wisconsin, where the State Board of Vocational Education has no responsibility for regular education, the State director of vocational education is the executive officer. In Colorado, where the board is composed of the trustees of the Colorado A. and M. College, its president is the executive officer. In some States, the State director also serves as the State agent for the field of vocational education in which he is experienced. Instead of a State director and three agents as in the above diagram, the State director — to illustrate — may supervise agricultural education and have under him only two agents, one for industrial education and one for home economics.

In the forty-three States which have also accepted the federal subsidy for the reëducation of disabled persons, there is usually on the staff under the State director an agent for reëducation work. While no federal aid is allotted for commercial education, a few States, notably New York and California, provide State aid for this work and have an agent for commercial training on the staff. In a few of the larger industrial States, the staff of agents for industrial education has been increased correspondingly to meet the growth of the movement. This is usually done by assigning new agents to special duties within a distinct field. In May, New York, for example, had on its staff in the Bureau of Industrial and Trade Education these agents: chief of bureau; a supervisor of teacher-training; two supervisors for the training of foremen; conference leaders for industry; one supervisor devoting a major part of his time to the development of apprenticeship classes; and an assistant in industrial research. On July 1, 1929, two additional supervisors were employed, one for the development of technical courses and one for the supervision of trade, part-time, and continuation schools.

The line organization pictured above is one familiar to those with commercial experience. As the arrows attempt to indicate, recommendations, petitions, and requests are supposed to come up from below to those officers higher in authority. This can originate any place, with local board, State agent, State director, or executive officer, or for that matter with a member of the State

board. They are supposed to be made to the responsible officer just above as, for example, by a local board to a State agent. If he has the authority under the rules and policies of the board, he may do so. If not, he is supposed to transmit the proposal with his comment and recommendation to the director. In turn, the director may decide or transmit in the same way to the executive officer and he to the board. Likewise, the State superintendent as executive officer may decide if he has the authority under the rules, regulations, and policies of the board. Where the local board dissents from any decision by an agent, it has the right of appeal to the director, from the director to the executive officer of the State board and from his ruling to that board as final authority. Correspondingly, decisions as indicated by the descending arrows are handed down from above.

Sound working relations between State and local boards.—For those engaged in local evening industrial schools, the important things to note are these:

1. All general arrangements are made between authorized representatives of the two boards and approved by each board.
2. Recommendations, protests, and proposals of the local board should not be made by "just anybody," but only by the local official authorized by the local board to do so.
3. These should usually first be taken up with the State agent responsible for the supervision of such evening classes and gone over with him.
4. He may make a ruling and this may be accepted as final, or the ruling may be appealed to the director and so on.
5. He may express an opinion but himself transmit the matter for a ruling.
6. He may refrain from an opinion and transmit the matter to his superior for decision.
7. All the foregoing may be done by personal conference or by correspondence or by both methods. When an official ruling on a disputed or uncertain point is desired, however, the matter should be transacted in writing.
8. All this is not red tape, but a systematic and efficient scheme

for avoiding friction and misunderstanding, clearing up confusion and difficulties, and arriving at a meeting of minds regarding every phase of the work in which both boards, responsible for funds, have a mutual interest and therefore a mutual responsibility.

9. Any local board responsible for evening industrial classes can very readily chart the foregoing scheme of organization for a State and define the path of recommendation and decision to be used in all matters involving the local use of State or federal funds for such classes.

State officials should clear the way for local industrial schools. They are the real administrators who discharge the administrative responsibility of the State board, which, as has already been pointed out, is to set up the conditions under which the local board as local agent for State and federal funds may carry on its work with the least difficulty. In this task all the officials, from the special State agent for industrial education to the State board, are engaged. This is one thing the diagram means. The other thing it means is that this State staff is also engaged in the task or is expected to discharge the responsibility of the State board for the improvement of these schools through supervision—a matter which has been made the subject of the next chapter. One means by which a State board clears the way is by that phase of supervision in which the local evening school is inspected in order to determine and ensure its right to reimbursement from federal and State funds for moneys expended. This is considered in the next chapter.

QUESTIONS

1. Check the performance by your State Board for Vocational Education through its agents, of the responsibilities of the State board for local evening industrial classes set forth in the first column in Chart LIV of this chapter. Rate the State board on a scale of 10 in its performance of each of these fifteen responsibilities and then reduce the total score to a scale of 100.
2. Check the performance by your local board for vocational education, or some local board with whose work you are familiar, with the corresponding responsibilities of a local board for evening industrial classes set forth in the second column of the chart. Rate the local board on a scale

of 10 in its performance of these fifteen responsibilities and then reduce the total score to a scale of 100.

3. Study the items in the State board specifications for approved evening classes given in Chart LV of this chapter. How far do these specifications square with the policies and procedures of the State board for your State in dealing with local evening industrial classes and how far do they differ? Where they differ with regard to any matter, which is the right policy?
4. Check the items in the outline of specifications defining the conditions governing approved evening industrial classes which are presented in Chart LVI of this chapter against the conditions set up by the State Board for Vocational Education of your State. How far do the conditions square with each other? Where do they differ, and which is right?
5. Study the description of "sound working relations" between State and local boards set forth near the close of this chapter. Check them against the relations observed by your local and State boards in dealing with the evening industrial school. Where they differ, which is correct?

CHAPTER XXIII

STATE SUPERVISION OF REIMBURSEMENT

In the preceding chapter, the administrative responsibility of the State Board for Vocational Education was presented—its duty of aiding local boards by clearing the way for their work. This chapter describes the other kind of responsibility of the State board, that of improving the service of local evening industrial schools through supervision. Broadly speaking, this supervisory responsibility of the board is of two kinds, supervision for reimbursement and supervision for improvement.

In the preceding chapter, Chart LIV gives "An Analysis of the Responsibilities for Local Evening Industrial Classes of the State Board for Vocational Education." Those responsibilities which are primarily or essentially administrative in character because they clear the way for efficient work by local boards were discussed. We are here concerned with the responsibilities of the State board which are primarily supervisory, which are listed below and given numbers corresponding to the same items in Chart LIV of the preceding chapter:

- IX. Inspecting the work of local classes for the purpose of reimbursement
- X. Inspecting and coöperating for purposes of improving the work of the local director
- XI. Assisting the local board to secure proper working conditions from the start
- XII. Assisting the local board to correct unsatisfactory conditions
- XIII. Assisting the local board to improve the quality of the service
- XIV. Assisting the local board to promote and extend the service of these classes
- XV. Assisting the local board to secure adequate returns from the time, effort, and moneys expended

In this chapter, the first of these responsibilities (No. IX) will be discussed as supervision for purposes of reimbursement and the remainder (Nos. X to XV, inclusive) will be treated in the following chapter on "State Supervision for the Improvement of Local Schools."

The duty to inspect.—One of the duties of the State board is to ascertain annually whether or not each local board is conducting evening industrial schools or classes in conformity to the requirements established by the State board. If it is, the community is entitled to receive reimbursements as previously determined; if not, the school is not eligible to the subsidy.

To discharge this responsibility, the State supervisor must in some way investigate each school at least once each year and report to his superior officer his findings and recommendations as to whether or not the local board should be reimbursed for expenditures incurred for maintenance, usually for all or part of the salaries of teachers.

Items to be inspected.—The nucleus of these requirements on local classes consists of the standards which the State board has established for the use of federal moneys. The items which must be covered by a State plan are described in the Vocational Education Act and the standards proposed for each of them by the State board must also be approved by the Federal Board for Vocational Education. The State board is probably also free to add any other reasonable requirement and, with the approval of the federal board, to use this requirement as a condition of reimbursement of evening industrial classes from federal as well as State funds.

Perhaps the best way to illustrate this is by the following chart, which sets up a form that could be used to advantage by a State supervisor in getting the facts about a local evening industrial school and making a recommendation to his superior officer as to whether the school should be approved or disapproved for reimbursement. It is a sort of summary sheet on which the State supervisor can summarize his findings and by the aid of which he can make his final decision so far as his responsibility goes.

In the first column the items on which the State board has established requirements are listed. Of these, items 1 to 5 are re-

CHART LVIII

CHECKING SHEET OF STATE SUPERVISOR OF VOCATIONAL EDUCATION FOR USE IN THE INSPECTION FOR REIMBURSEMENT OF THE _____ EVENING INDUSTRIAL SCHOOL

<i>Item</i>	<i>Satisfactory</i>	<i>Recommendation</i>	<i>Remarks</i>
1. Qualifications of teachers	Yes		Excellent
2. Conditions of building and building equipment	No	Better lighting Proper seating for adults	Conditions very bad
3. Minimum amount of money expended on school	Yes		
4. Courses of study	No	Content O.K., but not properly organized	Reorganization of courses, first step before another year is attempted
5. Personnel of students by classes (as to ages and occupations)	No	Admission restricted persons experienced in occupations for which instruction is given	
6. Numbers of students enrolled in classes	Yes		
7. Teaching equipment (instructional material, apparatus, etc.)	Yes		Fair, but needs more visualization equipment
8. Any other items of approval set up by State board	?		
To the State director: On the basis of the above findings and recommendations, I recommend that said school (be not) approved by the State board for reimbursement for the fiscal year 19— to 19—.			
Reason for recommendation and comment			

Signed _____

State Supervisor

quired by the Vocational Education Act in order to safeguard the expenditure of the federal money by a State board.

Comment. On the basis of such a memorandum, the State supervisor of evening industrial classes would recommend that the school be discontinued; or that certain classes be discontinued; or that the local board be notified of certain specific conditions that must be remedied; or that, so far as the requirements for reimbursement are concerned, the school has met these requirements satisfactorily. There is no such thing, however, as a school which is perfect, and which therefore cannot be improved. As we shall see, there is need to draw a sharp distinction between the rating of a class or school for subsidy and its rating for the purpose of improving its work from year to year. The qualifications of teachers, for example, might meet minimum standards while at the same time every one of them might need some kind of help to improve his service. Only by keeping this distinction clearly in mind can a State supervisor discharge his dual responsibility as an inspector. We are very much of the opinion that it will aid him greatly if he deals with each responsibility (for reimbursement and for improvement) by using a separate checking sheet for each.

In passing, it should be pointed out that the local board is entitled to have *in writing* either a copy of the foregoing report of the State supervisor or a letter containing the information it gives. Obviously, this should be transmitted by the executive officer of the State board or by the State director, according to the policy followed, and not by the State supervisor. The latter is merely making a report to his superior officer stating conditions and recommendations regarding the approval of the school. Frankness and not evasion are necessary if there is to be any real team-play between the two boards and their representatives.

Furthermore, superior officers up the line are very foolish if they deal with any local school on the basis of anything else than a written statement of the findings and recommendations of the State supervisor responsible for the work. Obviously, also, any State supervisor has no other way to protect himself for the future should any unsatisfactory local situation develop, except by the copy of his written report in which he has gone on record. Most to be deplored and condemned is either evasion by State officials, unwilling to face local conditions courageously, or collusion between State and local officials as the result of which bad situations are covered up and State and local moneys are illegally or inefficiently expended.

Difficulty of personal inspection.—Theoretically, at least, this summary sheet should always be based on an actual visit by the State supervisor to each evening school on which the report is made. In practice this is not always true. It is true for the first year any new center is operated at least. To it, the State super-

visor gives or should give careful attention so that it may be started right. An ounce of prevention is worth a pound of cure in this matter of meeting the State requirements for the reimbursement of local boards.

The time soon comes in some States at least when the State supervisor has to do the same thing as a foreman does who is a good manager. The latter focuses his inspection on the departments and workers that need it most. With limited time, many responsibilities and many centers, the State supervisor must make direct personal contacts every year with those centers about which he is doubtful; learn to know what centers do not need personal inspection every year; and develop ways of inspecting them by long range, as it were.

No State has a supervisor who gives his entire time to evening industrial classes. Usually the State supervisor of industrial and trade schools is responsible for all-day, part-time, extension, general continuation, and evening classes. In most States he is a very much overworked and overtraveled official. In some States it is impossible for him to cover, at least in any efficient way, all the schools and classes for which he, as an inspector, is held responsible.

Evening classes present some very special difficulties. Many of them are held in small communities, travel to which is difficult. There may be no other types of vocational education in such communities. As a result, a State official must give many hours in traveling to and from a community in order to inspect a few classes. Furthermore, the evening school period is a very limited one. Classes are held only during the fall and winter period when traveling is most difficult. In Northern States, much of it can be done only by train.

During an average of six months only does the State supervisor have a chance to see evening classes in operation. When he visits an evening school center, he usually finds classes in session for only two hours per night. As different classes are frequently held on different evenings, he would frequently be compelled to remain the entire week in order to see all of them in operation. All he can do after long and weary travel is to judge the school by the classes

in operation on the night he is present, and by the records, course outlines, job sheets, and such other written forms of evidence as are at hand.

Under the given conditions, it is inevitable that the State supervisor for industrial and trade education should give attention to different schools somewhat in proportion to the amount of money invested in their operation by the State board. This means that most of the time will be devoted to full-time day classes and probably the least to local evening industrial schools. As we shall see, this is equally true regarding their supervision for purposes of improvement.

Because of all these circumstances, many of which exist in virtually every State, the State supervisor needs to set up each year a systematic plan of discharging his responsibility of supervision (or inspection) of evening schools for reimbursement. This might be done by using some such sheet as Chart LIX on pages 343 and 344.

Comment. Obviously the schools in lists I and II of Chart LIX on page 343 need to be personally inspected every year until they at least meet without question the minimum requirements set up in a preceding chart (No. LVIII). In some instances the State supervisor may find a school not conforming to these requirements but recommend that it be put on probation for another year. This, in effect, retains it as a new school still seeking to qualify for subsidy.

Where an evening school is maintained by a local community which at the same time operates another type or types of vocational school such as a full-time day preparatory trade-school, to illustrate, the supervisor, if he plans to visit the latter, can readily have a look, at least, at evening classes. This is the situation with the evening schools given in list III of Chart LIX.

As will be explained in the succeeding discussion of supervision for improvement which follows, a few local boards prefer to deal formally instead of co-operatively with the State board. They insist on operating evening industrial classes with virtually no contact with State agents except such as is necessary in order to inspect the school, let us say once a year. Such classes are included in list IV of Chart LIX and obviously must be inspected annually.

The remaining evening schools divide themselves in groups V and VI of Chart LIX, those upon whose officials the State supervisor cannot as yet safely rely and those whose officials are operating an efficient service. The first one he must continue to visit because he cannot rely on any other method to get all the information necessary to determine whether the school meets

CHART LIX

STATE PLAN OF INSPECTION FOR REIMBURSEMENT OF LOCAL EVENING SCHOOLS, 1929-1930

<i>List of evening schools</i>	<i>To be visited?</i>	<i>Remarks</i>
I. New evening schools (1929-30)		
1.	Yes	If established
2.	Yes	
3.	Yes	
II. Evening schools still on probation		
1.	Yes	
2.	Yes	
3.	Yes	
III. Evening schools in cities having day classes also		
1.	Yes	If day-school is inspected
2.	Yes	
3.	Yes	
IV. Other evening schools dealing formally only with State board		
1.	Yes	May change to cooperative method
2.	Yes	
3.	Yes	
V. Other evening schools whose local officials need close supervision for improvement		
1.	Yes	Supervised for needed improvement also
2.	Yes	Supervised for needed improvement also
3.	Yes	Supervised for needed improvement also

CHART LIX—*Continued*
STATE PLAN OF INSPECTION FOR REIMBURSEMENT OF LOCAL EVENING SCHOOLS, 1929-1930

<i>List of evening schools</i>		<i>To be visited?</i>	<i>Remarks</i>
Other evening schools under efficient local direction and supervision			
1.		Yes	Once in 3 years
2.		No	Next year 1930-31
3.		Yes	Again in 1932-33
4.		No	1931-32
5.		No	1930-31
6.		Yes	Again in 1932-33
7.		No	1931-32
8.		No	1930-31
9.		No	1931-32

minimum standards. He must also continue to visit them in order to assist the local director in improving his own work and in this way that of the school. The hope of the State supervisor is that while constantly increasing the number of new evening schools in list No. I of the chart, he can decrease the number of them in lists II, III, IV, and V by bringing them to the condition that puts them in list No. VI.

These are the schools which are under competent local supervision and have established in the State supervisor a confidence that their older classes will continue both to meet State requirements and to improve, and that new classes in such schools will be started right. Since they do not need close annual inspection for reimbursement, he puts them on a spiral plan which brings him to them on a visit at least once in three or once in two years as his time-schedule will permit.

In any event, the State supervisor needs more time for planning, particularly the planning of his supervision for purposes of improving evening industrial classes discussed later. He needs in every way possible to reduce mere formal or perfunctory visitation and to substitute therefor visitation only where needed, visitation with a constructive purpose, visitation equipped with a plan.

Inspection without visitation.—It is probably too much to hope for an adequate supervisory staff of the State board sufficient to give evening industrial schools the help they need commensurate with their growing importance in the industry and in citizenship. An overburdened supervisor of trade and industrial education can decrease the number of centers he must inspect formally each year, and decrease the amount of time he must give to details in those centers which he visits, by the use of carefully devised blanks. These should be sent to all schools, both those which he does and those which he does not visit. They should bring out the pertinent facts bearing on the items or minimum standards of approval set up in Chart LVIII above.

It is impossible here to set up a complete questionnaire which would cover all the information which the State supervisor needs as an inspector for reimbursement. One illustration must serve.

One of the greatest difficulties of the State supervisor has to do with the requirement of the Vocational Education Act that instruction in evening industrial schools can be given only in such subjects as will increase skill or knowledge in the occupation in which the worker is engaged as his daily employment, or in such

as will lead to promotion or advancement in that work. Not only does this require the teaching of trades separately, but it requires also that only those employed in a specific given trade or in some very closely related one should be admitted to any evening class giving instruction for that trade. We have also come to recognize that any unit course which is so labeled that it is clearly designed to give help for some trade is an efficient unit in proportion as its content will be helpful to those engaged in that trade and to no others.

Notwithstanding this requirement, one of the most common faults of new evening industrial schools is the persistence of local officials in admitting to a class designed primarily for a given trade those who are in no way connected with it and therefore have no background of experience through which to understand what is taught and no opportunity to apply what has been taught even if they understand it. This is not only a sad waste of time for these novices, but it constitutes a grave injustice to the experienced workmen of the class who have a right to have the whole attention of the instructor centered upon those for whom the class was designed and not wasted in a futile effort to help inexperienced learners.

The State supervisor can easily secure each year the information which will enable him, without personal contact, to obtain the real facts about the personnel of each class in a local evening industrial school. He can do this by such questions as are set up in the following blank on page 347.

In like manner, the same plan can be used to get the vital facts on record regarding the qualifications of teachers, the content of courses of study, the teaching equipment, the building facilities and equipment, and the like. In conclusion, it should be added that much of this vital information is of such a nature that much of it is best secured by the use of the questionnaire or blank even from those schools which were personally visited by the supervisor.

After all, however, supervision (inspection) for purposes of reimbursement is of much less ultimate importance than supervision for purposes of improvement. It is only the first step by which

CHART LX

INFORMATION REGARDING COURSES AND STUDENTS OF THE _____ EVENING INDUSTRIAL SCHOOL

<i>Name of each class (course)</i>	<i>Arm of each class (course)</i>	<i>For whom designed</i>	<i>Distribution of members of class by occupations</i>
1. BC-4. Stair-building carpentry, 20 lessons	1. To teach carpenters how to lay out and erect va- rious kinds of stairways	1. Experienced carpenters	1. 6 carpenters; 1 pattern- maker; 2 bricklayers; 1 millroom hand; 1 manual training student; 2 clerks
2. BC-20. Building con- struction for con- tractors, 25 lessons	2. To teach contractors how to estimate small and large building jobs	2. Journeyman carpenters, contractors, and esti- mators	2. 5 carpenters; 3 brick- layers; 2 bookkeepers; 4 building contractors; 1 materials salesman
3. B-3. Sweet goods for bakers, 25 lessons	3. To teach bakers how to make plain and fancy pastry and sweet goods	3. Bakers, candymakers, and chefs	3. 6 bakers; 1 materials salesman; 3 chefs; 2 candymakers
4. W-1. Steel welding, 20 lessons	4. To teach metal workers how to weld steel by the oxyacetylene process	4. Auto mechanics, machin- ists, sheet-metal workers, boiler-makers, black- smiths, plumbers, and steam-fitters	4. 2 auto mechanics; 6 ma- chinists; 3 boiler-makers; 2 sheet-metal workers; 4 steam-fitters, 3 plumb- ers

To the _____ State Board of Vocational Education:
I hereby certify that the foregoing statements are true and
correct according to my best knowledge and belief.

Director

the fitness of the local community is determined to continue as a subsidized agent of the State and federal governments for the operation of evening industrial classes. It would be easily possible for any local evening school to meet the minimum standards of the State board as to teachers, courses of study, personnel of the student body, condition of building, and the like and do very poor work, be very inefficient as a school. Its methods of instruction, to illustrate, or its instructional material or both might make success impossible. Relying on perfunctory annual approval of minimum requirements, the school might also cease to grow. In the last analysis, the important thing about any evening school is whether it progresses or stands still.

In a very real sense, this inspection of evening industrial classes for the purpose of approving or disapproving of them for reimbursement is at the same time a step or phase of their supervision for improvement. So closely interrelated are the two responsibilities that the State supervisor finds that every vital fact he learns in the inspection of a school for subsidy is also a vital fact when he considers the school from the standpoint of shortcomings which interfere with its progress.

The State supervisor looks at evening schools with one eye, as it were, in order to determine (1) what new classes and schools should be disapproved and discontinued so far as the State board is concerned, because they fall so far below the requirements for subsidy that they cannot through supervision for improvement be made into efficient institutions; (2) what new classes and schools should be approved for the year conditionally and be placed on probation because, although they fail to meet all the minimum standards of the board, they can by supervision be improved from year to year; and (3) what schools and classes should be approved outright and in this way be encouraged and stimulated to continue and progress in their work? With the other eye, the State supervisor looks upon certain local evening classes as in process of improvement, laboring under difficulties and weaknesses which it is his duty to assist local officials to remove—a task which is discussed in the succeeding chapter.

QUESTIONS

1. Should a State board have the right and power to refuse reimbursement to any local evening school which has complied with all the paper requirements and conditions but has, nevertheless, failed to do its work in such a way as to meet a reasonable minimum standard of efficiency in instruction?
2. For how many years, in your opinion, should a State board, after it has promoted the establishment of a local evening industrial school, continue to reimburse that school in the face of the fact that the conditions under which the work continues to be conducted make efficient results impossible?
3. Is a State board justified in denying reimbursement in any given year to an evening school which it has permitted to operate during that year under the impression that reimbursement would be granted?
4. Suppose that a local evening school which has been denied reimbursement proves that the State supervisor has never criticized the work by pointing out the weaknesses which needed to be remedied. Is the State board justified in still refusing to reimburse?
5. Suppose that the State supervisor has pointed out the weaknesses to which he objects in the local evening school but has given local officials no aid in improving conditions. What would you do as the superior officer of the supervisor or as a member of the State board?

CHAPTER XXIV

STATE SUPERVISION FOR THE IMPROVEMENT OF LOCAL SCHOOLS

The last chapter discussed the use of State supervision for the purpose of determining what evening industrial classes should be reimbursed by the State board. In this chapter, State supervision for the purpose of improving these classes is considered. At this point, it may be well to raise again the question, What is State supervision as distinguished from State administration? As has already been stated, the latter has to do with clearing the way, with setting up the conditions under which local boards can establish and operate evening industrial classes successfully. On the other hand, State supervision, as the term is used in this book, has to do with the inspection and improvement of the service rendered by these classes as going concerns. As a supervisor, the State board discharges its responsibility in proportion as it discovers and corrects trouble.

Coöperation between State and local boards.—As has already been pointed out, a local board can, in some States at least, deal with the State board either formally or coöperatively. Few choose the former policy. Where the latter is used, the representatives of the two boards work with each other in a spirit of mutual helpfulness—cooperate as officials charged with the responsibility for a common task. That task is to secure the best possible results from the expenditure of public moneys on evening industrial classes.

In this coöperation, it should be emphasized, the State board, in most States at least, has no lawful right to order the local board to do anything. Legally, a local board, in most States at least, may, if it so desires, take the position that it wants no help from the State board beyond clear and reliable information regarding the minimum requirements for reimbursement and a fair inspection by State officials to determine whether these requirements

are being met. This leaves the full responsibility for improvement of the work on the local board.

Where the local board recognizes the value of help from the officials of the State board, however, the State official responsible for evening industrial classes is in a position to do a real job of supervision. As a supervisor, he then discharges three responsibilities instead of one: (1) inspection for the purpose of approval and reimbursement which has already been described; (2) supervision for improvement—for the purpose of discovering and remedying weaknesses, which interfere with efficient work; and (3) coöperative action to improve the service.

Here we are concerned with the last two of these three kinds of responsibility. To avoid possible confusion, it may be well to point out again that inspection for reimbursement is, in the last analysis, also inspection for improvement. When properly done, it results either in the sloughing-off of hopelessly inefficient classes and schools or in the enforcement of minimum requirements by the State board, as the first step in the improvement of a local service.

Supervision for Improvement—Studying the Local Director

In reality, a State supervisor of evening industrial classes does not supervise them directly. That is the job of the local director, even when the closest possible coöperative relations are established between the local board and the State board. The State supervisor, to illustrate, cannot remove an inefficient instructor, but can only indicate that the latter is hopeless and should be removed or not reëmployed, as a condition of reimbursement; nor can he give any orders to local instructors regarding their duties; nor should he criticize their work directly. His only recourse is to the local director, with whom, in a helpful way, he can, under the right kind of coöperation, discuss weaknesses, suggest remedies, and help the latter, as the official directly responsible, to make and carry out plans for improving the service.

The supervision of local directors.—From this standpoint, a State supervisor of local evening classes does not really supervise them but supervises the local directors of such classes. His responsibility is to get them to improve their own classes, and he is

efficient in proportion as he succeeds in this effort. At least, this is the point of view of the writers.

Entirely aside from the soundness of this theory or policy, it is the only one which under the given conditions will work, for these reasons: Only by this plan can local autonomy be preserved and local initiative be effectively utilized. As was pointed out in the last chapter, it is impossible for most State supervisors to maintain intimate contact with every evening school center each year, even for the purpose of supervision for reimbursement. As far as supervision for improvement is concerned, his only recourse is to maintain efficient contacts with local directors. Local evening schools reflect those who direct and supervise them locally. The only way, then, to improve them is by helping officials in charge of such classes to improve their own professional service in the operation of these schools. By improving the local supervision of such schools a competent State supervisor makes himself count the most. He not only gets better service from the schools themselves, but at a less expenditure of time, effort, and money.

Corresponding duties of the State supervisor.—Any really efficient State supervisor of these classes must therefore learn to discharge these duties:

1. Establish close coöperative relations with every local director
2. Look upon every local evening industrial school as the expression of the work of that director
3. Regard every director as a member of the coöperative staff of the State supervisor
4. Recognize as his own chief duty the improvement of these directors in service
5. Visit in any given year every new and every weak or "lame duck" center
6. Set up a schedule of "spiral visitation" so as to make personal contact with every center at least once in a given period of two or three years
7. Learn to know what directors are carrying on their work with reasonable efficiency, and visit them least
8. Devise efficient blanks and forms and questionnaires to

secure vital information for purposes of reimbursement and of improvement which cannot be secured by the personal visitation every year of all schools, and much of which can be just as well secured by correspondence

9. Use these with those local directors who have proved themselves intelligent and reliable directors, personally or in groups, as the situation requires

10. Center effort on these local directors who most need help

The local director.—Since the State supervisor supervises local directors and not the local schools themselves, the thing which he really inspects is not the evening schools but the directors themselves. He inspects them in order to find out with what manner of men he is to deal in a coöperative way. Obviously, this cannot be done without making a study of each local director, in the nature of an inspection. Somehow the State supervisor should learn the answers to all such questions about the local director as these: 1. What are his personal qualifications? 2. What abilities does he possess? 3. What ideas and beliefs does he hold? 4. What knowledge and experience has he gained? 5. What are the working conditions under which he is operating the school?

Perhaps the best way to illustrate the foregoing is to start with a new evening school center established by a community which has never before carried on such an enterprise. It would, of course, be better for the local school officials to get in contact with the State supervisor before a local director is appointed. When this is done, the State supervisor has a chance to advise local school officials as to the kind of a man required for the local directorship and in this way help to secure the best possible person available for this responsibility.

Usually, however, the representative of the State board is not called in for consultation until after this local director has been selected. The immediate task before the State supervisor then is to "size up" the official and to enter at once into the closest possible working relations with him, so as to be of the largest possible help from the start. Obviously, the State supervisor should know both the points of strength and the points of weakness of the responsible local official who will make or mar the working school

program, so that from the start his assets may be utilized and his shortcomings be removed or remedied. Any State supervisor will find some such chart as the following helpful to him in making a study of such a local director. In it no attempt has been made to present any standard analysis, but only to suggest the kind of items that have an important bearing on the work of the local director and that should therefore be considered by the State supervisor when he inspects, as it were, the former.

Comment. On the basis of such an analysis as is given in the following chart, the State supervisor is in a position to begin at once the task of helping the local director where he is weakest and therefore where he most needs help, remembering all the time that progress is made only by improving the latter, so that he may remedy his own troubles directly. One example, under each of the following items, must serve here:

Personal characteristics. Suppose, to illustrate, that the State supervisor finds in his study that the local director is very sensitive and resentful of criticism. This gives the former his cue in all future dealings. He must, if he is to influence the local director, win the confidence of the latter in his fairness, in the value of the help he offers, and in his disinterestedness. It almost goes without saying that, under the given conditions, the State supervisor must be just as ready to accept criticism as he is to give it.

Abilities or habits. As the term is used in the following chart, it indicates both native capacity and trained habits. A person may have native intelligence, for example, and yet not be skilled in habits of thinking straight about the problems that confront him. He may have sufficient brains to make plans for evening classes successfully, but may not know how to do such planning. At the outset, therefore, the State supervisor should learn whether the local director has the ability to function in the making of plans, the discharge of executive responsibilities, and the like. If he does not, this may be caused by lack of training. In such a case, the State supervisor should help him to practise correct habits of planning and directing. On the other hand, it may be apparent from the start that a weak man has been appointed. Under these circumstances, the State supervisor has three recourses: 1. He may regard the situation as hopeless and let the evening school die a natural death, as it will, inevitably, under these circumstances. 2. He may notify the local school officials that cooperative supervision is futile with such a man. 3. He may undertake to supply this local director with direct help in the discharge of his responsibilities.

Set of mind. Every man acts according to his habits. Among these are his beliefs, his attitudes, his habitual way of looking at matters. If the local director believes that adult learners, for example, should be subjected to the same sort of discipline as he has been accustomed to exact from children, then

CHART LXI

THE KIND OF ITEMS TO BE COVERED IN A PRELIMINARY ANALYSIS BY A STATE SUPERVISOR OF THE LOCAL DIRECTOR OF AN EVENING INDUSTRIAL SCHOOL

I. Personal characteristics

1. Has he moral courage?
2. Is he industrious?
3. Has he tact and diplomacy?
4. Is he a politician of the right kind?
5. Does he resent criticism?
6. Is he a capable leader?
7. Does he possess initiative?
8. Is he resourceful?
9. Is he reliable?
10. Is he a real leader?
11. Any other item or items.

II. Abilities (or habits)

1. Has he ability to plan?
2. Has he executive ability?
3. Has he the ability to supervise a teaching force?
4. Has he the ability to organize a course of study?
5. Has he the ability to sell his school to the public?
6. Has he the ability to sell his school to the regular school people?
7. Has he the ability to advertise his school successfully?

8. Has he the ability to pick competent instructors?
9. Has he the ability to train instructors for industrial classes?
10. Any other item or items.

III. Important ideas and beliefs (set of mind)

1. Does he have a sympathetic understanding of working people?
2. Is he genuinely interested in evening industrial classes?
3. Does he believe in faculty psychology and formal discipline?
4. Does he believe in the use of the formal lecture and of the formal class drill for teaching adults.
5. Does he believe in the application of regular school regulations to evening school discipline?
6. Does he believe in the general or the short-unit course organization of evening school work?
7. Does he believe that the school should impose courses, or that students should be taught what they want?
8. Does he believe in general or in specially functioning knowledge or information?
9. Any other item or items.

CHART LXI—*Continued*

THE KIND OF ITEMS TO BE COVERED IN A PRELIMINARY ANALYSIS BY A STATE SUPERVISOR OF THE LOCAL DIRECTOR OF AN EVENING INDUSTRIAL SCHOOL

IV. Previous experience and knowledge

1. Has he ever directed evening industrial classes previously?
2. Has he ever adequately visited such classes directed by others?
3. Has he read the literature on evening extension classes for industrial workers?
4. Has he studied the habit psychology?
5. Is he familiar with the methods of instruction necessary for efficient work in evening school?
6. Does he know the characteristics of adult learners?
7. Does he know what qualifications are necessary for successful service as an instructor?
8. Does he know what training should be given to evening school instructors?
9. Has he had any experience in dealing with employers, foremen, or unions in the matter of evening classes?
10. Does he know how to go about analyzing an occupation for the purpose of securing from workers the functioning content and unit courses of study?
11. Does he know what the factors of efficiency are in an evening industrial school?

12. Does he know how to determine when evening school instruction is efficient?
13. Has he ever had any experience in organizing an evening industrial class?
14. Has he ever had any previous experience as a responsible executive?
15. Does he thoroughly understand the requirements and standards for reimbursement of the State board?
16. Any other item or items.

V. His working conditions

1. Are his superior officers sold on an evening school program?
2. Is the school-board sold on the idea of establishing, maintaining, and developing evening classes for employed workers?
3. Is the community sold on the proposition?
4. What is the attitude of employers, foremen, and organized labor toward the proposed evening school program?
5. To what extent is the situation dominated by politics which interfere with efficiency?
6. Is the budget sufficient to carry out the proposed program successfully?

CHART LXI—*Continued*

THE KIND OF ITEMS TO BE COVERED IN A PRELIMINARY ANALYSIS BY A STATE SUPERVISOR OF THE LOCAL DIRECTOR
OF AN EVENING INDUSTRIAL SCHOOL

- | | |
|---|--|
| 7. What is the condition of the quarters which it is proposed to use for evening classes? | ship of the director to his superior officers and those under him been clearly defined? |
| 8. Does a superior officer hold him responsible as "an expert," or does he interfere with the work? | 11. Do the regular school regulations regarding instructors prevent him from securing the kind of teachers the work demands? |
| 9. Does his superior officer hold traditional or obsolete notions about evening school instruction which interfere? | 12. Has the principal of the building in which these classes are to be held a coöperative attitude? |
| 10. Has the scheme of organization and relation- | 13. Any other item or items. |

his evening classes will go to pieces because adults cannot be handled in that way. When this is true, the State supervisor should address himself to the education of the director regarding the characteristics of evening school students; to the reasons why they must be dealt with on a man-to-man and not a man-to-child basis; and to the policies in building, shop, and class-room management which must be followed in order to attract, hold, and serve mature learners.

Previous experience and knowledge. Suppose that the local director has had no experience with the task of getting information from workmen about the processes of occupations and their demands in skill and knowledge on workers or with the task of analyzing an occupation to secure its functioning content in skill and knowledge. Without some ability to do these things, the director can never be efficient in organizing unit courses of instruction or in supervising training for any line of employment. It becomes, therefore, the responsibility of the State supervisor to teach him how to make such analyses. This the supervisor could do by making a study of some local occupation in company with the director and using their common experiences in this study as the means of teaching the proper method to the latter.

His working conditions. Among the handicaps under which the local director may labor are regulations and standards regarding the academic qualifications of instructors which have been built up in the schools of the community. No one can teach, let us say, and be paid for his services from public funds unless he has a degree from some college or normal school. In the evening industrial school, however, the chief asset which the instructor must have is a thoroughgoing mastery of the trade skill and knowledge he teaches. Nevertheless, pressure from above is exerted to enforce the same standards of general education on such men as are required in academic teaching.

This discourages really competent workmen from serving as instructors. Even when they are grudgingly admitted to the service, capable and therefore independent managers, superintendents, and foremen will not long allow themselves to be harassed by what they regard as "nonsensical regulations." Where the local director believes that these scholastic standards for evening school teachers should be enforced, it becomes the duty of the State supervisor to convince him of the folly and futility of such a policy. Should he agree with the State supervisor but be hampered by his superior officer, it would be the duty of the State supervisor to help him convince that superior officer.

A working chart for use in making such a study of the responsible local official can easily be made by any State supervisor. For lack of space, an abbreviated one is presented here which can readily be expanded to cover all such items as are listed in the foregoing chart. In the following chart, a few items are taken from the list given in the foregoing one and are numbered to correspond:

CHART LXII

A PRELIMINARY STUDY OF THE DIRECTOR OF ——— EVENING SCHOOL

<i>Item</i>	<i>Rating</i>	<i>Remarks</i>	<i>What to do (by State supervisor)</i>
I. Personal characteristics 5. Does he resent criticism?	5. Very much	5. Sincere, earnest, and friendly	5. Must develop mutual confidence Praise every good thing Suggest rather than criticize Be patient Must be willing to take as well as give criticism
II. Abilities (mental habits) 1. Has he ability to plan	1. Considerable	1. No experience in making a thorough plan for evening school work	1. Must show him how to do this Get such plans by others Give him a demonstration of one Sell him on the value of such planning Encourage him to do this for himself Go over his planning Suggest improvements

CHART LXII—Continued

A PRELIMINARY STUDY OF THE DIRECTOR OF ——— EVENING SCHOOL .

19

<i>Item</i>	<i>Rating</i>	<i>Remarks</i>	<i>What to do (by State supervisor)</i>
III. Important ideas and beliefs 5. Does he believe in the application of regular school regulations and procedures to evening school discipline?	5. Yes	5. Has reputation as a rigid disciplinarian	5. Discuss the matter with him Point out differences between the characteristics of children and those of adult learners Furnish readings on the point Get him to write directors of other evening schools to learn their opinions, experiences, and policies
IV. Previous experience and knowledge 7. Does he know what qualifications are necessary for successful service as evening school instructor?	7. Has heard it discussed a great deal	7. But cannot rid himself of the notion that academic scholarship is indispensable and trade knowledge is not	7. Furnish readings Inform as to State standards Analyze motives and needs of adult workers Get him to consult other directors Have him talk to workmen about the matter

CHART LXII—*Continued*

A PRELIMINARY STUDY OF THE DIRECTOR OF ——— EVENING SCHOOL

—19—

<i>Item</i>	<i>Rating</i>	<i>Remarks</i>	<i>What to do (by State supervisor)</i>
V. Working conditions 7. What is the condition of the building which it is proposed to use for evening classes?	7. Poor lighting Bad ventilation Improper seating Lacks special facilities for special classes Shops poorly equipped	7. Accessibility good Check-room O.K. Good blackboards	7. Commend good features Call attention to bad ones Indicate customary standards Furnish with special expert information Show importance of different conditions that are poor Go with him to superior officer about the matter if he desires

Supervision for Improvement—Studying the Work of the Local Director

According to the Scriptures, "By their fruits ye shall know them." This is equally true of the local director of an evening industrial school. In addition to inspecting him directly in the way we have just described, the State supervisor will also inspect him indirectly by studying the kind of work he does in that school. By inspecting the work from time to time, the State supervisor, responsible for improving a local director, can gain all such information as the following:

1. He can check his original estimate regarding the points of strength and weakness of the director against these same points as they are revealed by the latter in the performance of the job.
2. He can check the progress which the director has made in the improvement of himself as a director, particularly as to all points of weakness.
3. He can discover points both of strength and of weakness in the director which are usually not revealed except on the job itself, such as, for example, interest, executive ability, tact, courage, leadership, wrong notions, and the like.
4. He can discover serious troubles which need to be remedied and help the director to remedy them.
5. He can discover serious troubles which are common to a number of local directors and plan to overcome these difficulties through group conferences.
6. He can check the director as to the wise and economical management of funds and help him to get better returns for his money.

Chart for studying the work of the director.—It seems hardly necessary to say that this study should be made in no critical spirit but solely for the purpose of equipping the State supervisor to deal more understandingly with his task of helping the director. Obviously many, if not all, the items would be subject to inquiry which are listed in Chart LVIII of the previous chapter entitled "Checking Sheet of State Supervisor for Vocational

Education for Use in the Inspection for Reimbursement of Local Evening Industrial Schools" (qualifications of teachers, conditions of building and building equipment, minimum amount of money expended, courses of study, personnel of students as to age and occupations, numbers enrolled in classes, and teaching equipment). All these reveal the work of the director and therefore his status as to efficiency. There are many other vital phases of the evening school as an enterprise with which the State supervisor would also be concerned. This is shown by such items as are suggested in Chart LXIII on pages 364 and 365.

Another working sheet of value can be made by the State supervisor for use in checking the work of the local director in action against the foregoing items. (Chart LXIV on page 366.) This is illustrated by the use of items under Supervision in Chart LXIII.

Supervision for Improvement—Planning the Improvement of the Local Director

If the foregoing discussion is sound, then it seems clear, to summarize, that the State supervisor has these general duties to perform: He studies (inspects) the local director and his work to discover weaknesses (troubles) which need to be remedied; he studies these weaknesses to find the real cause of them; he plans to help the director remedy them; he puts over his plan; and he checks the outcome of his efforts to see whether he has accomplished what he started out to do. In performing the first two of these duties, he is an inspector detecting troubles which interfere with efficiency; in performing the last three he is a manager planning for action, directing or carrying out his plan, and measuring the results. It is as a manager that the State supervisor demonstrates most his real ability and worth or the lack of it. Weaknesses and troubles are far easier to find than to cure; consequently the supervisor may be an excellent detective, but fail in the rôle of a planner and executor of a remedy. Furthermore, since he can work only through the local director, this plan must focus on his improvement and be worked out through him. Here, obviously, is a task which

CHART LXIII

ITEMS FOR CHECKING THE WORK OF DIRECTORS OF LOCAL EVENING INDUSTRIAL CLASSES

I. Administration

1. Is the administrative organization of the enterprise efficient?
2. Has the work been properly advertised?
3. Has real leadership been expressed?
4. Are adequate funds provided?
5. Is there effective cooperation between officials?
6. Is there effective cooperation between officials and employees?
7. Are records and reports adequate?
8. Are they properly kept?
9. Has red tape been avoided in the discharge of business?
10. Has the enterprise been properly planned?
11. Is the plan being carried out as planned?
12. Are regulations and orders carried out promptly and consistently?
13. Any other item or items.

II. Supervision

1. Is the work adequately inspected?
2. Are the troubles discovered that should be remedied?
3. Are troubles analyzed to find the real cause?
4. Are plans made to remove the cause?
5. Are these plans carried out?

6. Are they successful?

7. Any other item or items.

III. Buildings and equipment

1. Is the building in good condition?
2. Is the building equipment adequate?
3. Are the building facilities adequate?

IV. Courses of study

1. Are they properly planned to meet the real industrial needs of the particular community?
2. Are they properly organized in units?
3. Have they directly functioning content for each group taught?
4. Are these unit courses for any given trade arranged so that overlap and duplication of one course with another is avoided?
5. Does the skill or knowledge covered by each course give a definite usable asset for the occupation?
6. Are these courses changed from time to time to meet changing demands and the growing experience of instructors in teaching them?
7. Are new courses organized to meet the special needs of special groups?
8. Do the courses offered discriminate between industries?

CHART LXIII—Continued

ITEMS FOR CHECKING THE WORK OF DIRECTORS OF LOCAL EVENING INDUSTRIAL CLASSES

9. Do the courses offered discriminate between skilled and unskilled occupations?
 10. Do the courses offered discriminate between technical and practical occupations?
 11. Are all demands being met which have been expressed by different groups of workers?
 12. Any other item or items.
- V. Instructors**
1. Have they been properly selected?
 2. Do they know how to teach?
 3. Have they been trained to teach?
 4. Are they supervised in their work for purposes of improvement?
 5. Are they interested?
 6. Do they make adequate preparation for the lesson?
 7. Can they analyze the occupation they teach so as to get functioning content?
 8. Do they use efficient methods or devices?
 9. Any other item or items.
- VI. Efficiency factors in teaching**
1. Are the unit courses well planned?
 2. Are the lessons well planned?
 3. Is the shop equipment suitable?
 4. Is the class-room equipment suitable?
 5. Are suitable visualization and demonstration devices utilized?
6. Have students been selected properly as to age and occupations?
 7. Are they grouped effectively by classes for instruction?
 8. Are the classes restricted in size to an effective teaching load?
 9. Is the discipline adapted to adult learners?
 10. Is the instructor master of what he teaches?
 11. Is the language of the instructor understandable by the learner?
 12. Does the instructor make use of the daily experience of the learner as a basis of teaching new things?
 13. Does the instructor apply the new things he teaches to the daily experiences of the learner?
 14. Are well-recognized steps in teaching used?
 15. Is the inductive method of teaching used?
 16. Are students taught to use knowledge instead of memorizing it?
 17. Is the progress of the student tested by his ability to apply what he has been taught?
 18. Are proper job instruction sheets used?
 19. Are proper shop knowledge sheets and textbooks used?
 20. Is the class management effective?

CHART LXIV
WORKING SHEET FOR THE STUDY OF THE WORK OF THE DIRECTOR OF THE ————— EVENING
INDUSTRIAL SCHOOL

II. Supervision	<i>Item</i>	<i>Yes No</i>		<i>Comment</i>
		<i>Yes</i>	<i>No</i>	
	1. Is the work adequately inspected?		X	Director spends too much time with details.
	2. Are the troubles discovered that should be remedied?		X	Little troubles are—most big one are not.
	3. Are troubles analyzed to find the real cause?	X		Those that are detected are usually analyzed and cause found.
	4. Are plans made to remove the cause?		X	Seldom—usually attacked by making new rules.
	5. Are these plans carried out?	X		Any plan made is followed closely.
	6. Are they successful?	X		Usually they are, for the troubles with which they deal.

calls "for all a man's fortitude and delicacy." It will be possible here only to treat this duty of planning briefly and sketchily.

Whether he be a foreman in a plant or a State supervisor of evening schools, any man who faces the responsibility of improving a situation (trouble, weakness) for which he has a responsibility because it affects efficiency can deal with it in three ways. He may avoid it; he may guess at a remedy; or he may plan a solution before he tackles the problem. If this is necessary with a foreman whose problems are not only constantly under his nose, as it were, but under his direct control, how much more so is it in the case of a State supervisor who is widely separated from the seat of trouble; who makes direct contact with the local director only at irregular intervals; and who can carry out any scheme to improve conditions only indirectly through this director? Unless he does plan every phase of his work with care, the State supervisor soon finds himself running around more or less in an aimless circle and wasting precious time in spasmodic attempts to give the various situations in his State a sort of futile lick and promise. When this occurs, he is guilty of the same lack of careful study of *his* problems and systematic performance of *his* duties which he deplors in a local director.

When the State supervisor plans, therefore, he is usually spending his time to the best advantage. Among the matters about which he needs to make plans are all such as the following. Here *planning* is used in a very broad sense to include all such things as program, scheme, method, and procedure:

1. A systematic study of the vital characteristics of each local director of evening schools
2. A systematic study of the work of this director in the establishment and operation of these schools, such as would be gained from visitation, conference, official reports, correspondence, and special reports
3. An analysis of the points of special weakness of each director and the classification of these weaknesses into those which should be dealt with individually and those common to a group of directors, which, as a labor-saving device, should be dealt with as group problems

4. An analysis of the main troubles common to all or many evening schools which interfere with efficient service
5. The formulation of effective policies and remedies for each of these main troubles and weaknesses
6. A carefully thought-out policy and program for dealing with each director individually about his special difficulties
7. A carefully thought-out policy and program for dealing with groups of directors about common troubles through conferences, institutes, special bulletins, special circulars, special readings, and the like
8. An analysis of the comparative importance and prevalence of different weaknesses in local directors, from the standpoint of the relative effect of these troubles on efficiency
9. An analysis of the comparative importance and prevalence of different troubles, common to all or many directors, from the standpoint of the effect of these troubles on efficiency
10. A planning of the time and attention of the State supervisor so as to distribute it to the best advantage and in proportion to the prevalence among local directors of vital common weaknesses and of vital common troubles

Coöperative Action to Improve the Local Schools

Assisting the local board from the start to secure effective working conditions.—To prevent troubles before they happen is the best way to handle any matter because “a stitch in time saves nine.” Facing a new responsibility, moreover, local boards or their officials are far more receptive to suggestions and even criticism than they are later after they have committed themselves to unwise policies or inefficient procedures. Wise, indeed, is the State supervisor who spends all necessary time in working with the responsible officials of a community before the proposed school opens its doors. Here his task calls for all the experience, knowledge, diplomacy, patience, and sometimes courage which he can bring to bear. His job is to educate these officials—educate them away from false and foolish notions about the work and educate them into sound ideas, policies, and methods which have stood

the test of experience elsewhere. As soon as he discovers, however, that any local director is competent and knows what he is about, it is of course the part of wisdom to follow the lead of that official, gaining such helpful information as seems advisable and assisting where this is needed. All this merely emphasizes again the importance of knowing the local director, which has already been discussed.

Assisting the local board to correct unsatisfactory conditions.—As has been repeatedly stated, the State supervisor can do this only indirectly and usually only by calling the attention of the local director to the trouble and preparing (helping) him to deal with it. In effect, the former says, "This trouble interferes greatly with the work. For it the director is responsible. In the last analysis it is his fault, in so far at least as the difficulty can be remedied. My path leads to his door. But before going to him, I should first of all trouble-shoot the apparent or surface trouble to find the real cause or causes that lie back of it; then I am in a position to give real help."

Suppose, for example, that by inspection of the school, the State supervisor finds that most of the teaching is inefficient according to recognized standards for evening industrial classes, but he does not know the reason for this. Against this fact he checks the possible causes set up under *Instructors* in Chart LXIII "Items for Checking the Work of Directors of Local Evening Industrial Classes." Running through the list, he checks against these questions:

1. Have these instructors been properly selected?
2. Do they know how to teach?
3. Have they been trained to teach in these classes?
4. Are they supervised in their work?
5. Are they interested?
6. Do they make adequate preparation for the lesson?
7. Can they analyze the occupation they treat so as to get functioning contact?
8. Do they use efficient methods or devices?

Suppose further that, after considering the situation, he decides that the cause of poor instruction lies in items 2, 3, 4, 7, and 8,

All these causes point to item 4 as the underlying cause. He is then in a position to go to the director and say, "Bill, I wonder if the teaching could not be improved by giving your instructors more help through supervision." Conceivably, also, the State supervisor may analyze or trouble-shoot the cause of this lack of supervision before he goes to Bill at all. When they get together, if they deal frankly, all such causes as these will be brought out in the case of different directors:

1. Overburdened with other worries
2. No time for supervision
3. Too much time spent on comparatively unimportant details
4. Not enough clerical assistance
5. Director does not know how to inspect
6. Does not know how to analyze the weaknesses of instructors
7. Has no standards against which to check the instructors
8. Does not believe you can do very much to help things anyhow
9. Does not know how to plan the correction of weaknesses
10. Does not have the courage to criticize his instructors
11. Does not know how to deal with individual cases by conference
12. Does not know how to use group conferences to deal with common weaknesses
13. Not interested because he does not regard himself as responsible for what goes on in the classes
14. He is just a poor manager

Obviously, if item 1, 2, or 3 is the cause, the director needs more paid assistants. If items 5 to 13 constitute the cause or causes, the State supervisor has a considerable job on his hands. But, if he wants to improve the situation, he must have the director do it; consequently he makes progress with the task only to the extent that he plans and carries out his plans for changing the director's point of view, for stiffening his courage, or for preparing him to be a supervisor instead of an office clerk. Such problems as those just raised are the crucial ones which determine the real success of the school. Because they are also treated in the chap-

ters on local administration and local supervision, however, they will not be discussed further at this point.

Assisting the local board to improve the quality of the service.— Perhaps most of all the State supervisor should fix his attention on this responsibility, because all his responsibilities regarding the local evening industrial schools focus on this one. In the foregoing pages much has already been said which bears directly on this matter, and succeeding pages discuss phases of the same duty. Broadly speaking, the State supervisor affects this matter in proportion as he does these things successfully:

1. Gets the local board to appoint the most competent man as director who is available for the job, and through coöperative supervision discharges the following responsibilities:
2. Helps this director to make the best possible start on his evening industrial school program
3. Helps him to improve his own ability to conduct this school efficiently
4. Helps him to discover serious weaknesses in his school and to plan and execute plans for remedying them
5. Helps him, at the start, to establish minimum standards for the work of the school, to check the work against this standard, and to reach the standard
6. Induces him from year to year to advance this standard and again improve the work to meet rising requirements and expectations
7. Helps him to win from superior officers and the local board the support which will give the school stability and provide the budget necessary to improve the service

Assisting the local board to promote and extend the service.— All that was said above in paragraphs XI to XIII, inclusive, regarding the improvement of the work itself is fundamental in any effort to promote or extend the service. Wherever an efficient evening school furnishes in all its classes real help to students from wage-earning occupations, a need for more service is demonstrated, and the school has already sold itself to more customers. In an increased budget to meet the additional cost, new classes can be operated to help new students by new courses, old students by

new advanced courses, and more students by old courses. In this expansion the State supervisor helps in proportion as through coöperation with the director he helps the latter to accomplish these things:

1. Make the work of the school of unquestioned value to students
2. Advertise effectually the old services (courses) and the new services offered each year
3. Build up in the community, by publicity, contacts, and efficient service, a supporting group of workmen, employers, business men, social workers, schoolmen, and citizens generally who will aid the director to secure the budget which he needs for the services they want performed
4. Secure from organizations of workmen and of employers the active support of the evening school program which advertises it, and brings to the school large numbers of interested learners

Assisting the local board to secure the best possible results from the money expended.—Like the superintendents or foremen in any other kind of service, the State supervisor and the local director have the common responsibility of getting the largest returns they can from the funds used. In other words, they are mutually concerned regarding anything that affects cost of production. In a manufacturing concern, the cost of any article is affected by two things: If the quality of the article is raised or lowered at the same expense, the cost of production is decreased or increased correspondingly. If the same article is produced at a greater or at a less expense, the cost of production is increased or decreased correspondingly. This is just as true in evening industrial schools. Render the same service at a lower expense per student, and cost of production is reduced. Employ the same budget, expend the same money for each student on the average, but improve the kind of service rendered, and cost of production is reduced because better results are obtained from the same outlay of money.

While the officers of evening industrial schools should of course avoid extravagance and practice efficient economies in the use of the budget, they affect cost of production much more by improv-

ing the work of these schools so that better results are obtained for every dollar expended. Generally speaking, the amount apportioned by most local boards for evening classes is about pared down to the bone; consequently the problem of most local directors is not how to save money, but how to get satisfactory results in serving as many students as possible with an inadequate budget. Since this is true, the State supervisor best assists the local board, from a financial standpoint, when he helps the local director to improve the character of the instruction given by the school. Here the State supervisor needs to think very straight and, through his leadership, to educate local officials into such principles and policies as the following:

1. While they reduce the per capita cost of operation, overcrowded classes do not reduce the total cost of operation.
2. Beyond well-recognized limits as to the number of students that can be efficiently taught in different types of classes, overcrowded classes increase cost of production because they decrease the quality of the instruction.
3. An incompetent instructor is costly at any price. Whatever is paid to him adds to the cost of operation out of all proportion to the results. Usually the results in instruction are virtually zero or less.
4. Savings in the budget, therefore, which are made by paying low wages to poor instructors increase instead of decrease the real cost of production, the per capita cost of real service.
5. Reducing the overhead cost of all such things as building equipment and facilities, instructional material and devices, and janitor and office service is false economy when it discourages prospective students from enrolling and gives those who do attend a stone instead of bread.
6. The real efficiency of any evening industrial school should be measured not by the total number of students reached but by the number to whom truly helpful instruction was given effectively.
7. In its beginning stages, therefore, such a school should undertake only that educational service to employed people which the available budget will permit the school to perform effi-

ciently. Distributing a limited budget over too many classes is the most unwise of policies.

8. The surest way to win a larger budget and increased demands by larger numbers of wage-earners for additional help from the school is to give all students from the start a training of unquestioned value. Over a period of years this is the wisest policy and the truest economy.

QUESTIONS

1. How far is the statement made by a noted manufacturer true with regard to an evening industrial school that "the way to reduce costs is to increase expenditures"?
2. Suppose that you are a State supervisor of local evening industrial schools or, at least, a prospective one. Pick out some director of an evening industrial school and check him up on each of the items in Chart LXI of this chapter, omitting only those items under "V. His working conditions." Add any important item or items you find necessary in making this estimate of him. Rate him on each item, using a maximum scale of 5, and reduce the total score to a scale of 100.
3. Suppose that you are a director or a prospective director of an evening industrial school. Rate the State supervisor of local schools on precisely the same items used in the rating of a director in question 2 above.
4. As an actual or possible State supervisor, visit a local evening industrial school and study it closely so as to answer intelligently the questions asked in Chart LXIII, "Items for Checking the Work of Directors of Local Evening Industrial Classes."
5. Taking the rôle of a State director of vocational education, make a chart covering the items you believe he should use in forming an estimate of the efficiency of the official serving under him as State supervisor for local evening industrial schools.

APPENDIX

APPENDIX

The material indicated in this Appendix has for convenience been presented here rather than in the body of the text where appropriate reference was made to it. This material is presented under three heads as follows:

- A. Registration Work
- B. Instructors and Instructors' Records
- C. Lesson-Plans

A

Registration Work

In any evening industrial school, particularly if it be of any size, large gains in the efficiency of the service are made where at least a week of preliminary registration is provided before the evening school starts. During this week there should be opportunity for both day and evening prospective students to gain information and advice from those qualified to answer their inquiries and help them decide what course to take. As most of these students work during the day, the great bulk of them must be dealt with at night. The evening school quarters should be open every night but Sunday during this preliminary week; an adequate clerical force should be provided; and at least one qualified representative of every important trade or industry for which the school gives training should be present to advise with students and help them choose and plan their work in the school. Every feature of this service should be carefully planned in advance, and every person participating in it should be carefully instructed in his duties and responsibilities as well as in the policies and procedures of the school. It will not be possible or necessary to provide samples here of the various forms and kinds of paper-work which will be found helpful in this registration service. Among them the following, which if offered in full here would constitute additional charts

in this book, have stood the test of use. While the charts referred to in this Appendix are only described and not reproduced, they have been given consecutive numbering and thus have been made a part of the chart material listed at the beginning of the book. In this way they can be readily found by the reader.

CHART No. LXV—Organizing Registration Work: providing information for all employees of the school and describing the exact procedure to be followed in the processing of applicants through registration.

LXVI—Notifying Instructors Regarding Registration Duties.

LXVII—Scheduling Duties of Instructors (during week of preliminary registration).

LXVIII—Special Schedule of Registration: work of instructors during opening week of school.

B

Instructors and Instructors' Records

Among the helpful forms and letters justified by long use are the following:

CHART No. LXIX—Notifying Instructors Regarding Appointment and Preliminary Meetings of Instructors.

LXX—Evening School Register (signed by the instructor on entering the building and on leaving). Size, 11 inches by 14 inches. Provides for consecutive numbering down the first column, and gives vertical columns across the page for these entries: signature of instructors and others, time of signature, time of departure, number present, number absent, and remarks. Loose-leaf form with perforations for binding in loose-leaf binder, detachment and permanent filing. Kept at desk in main office.

CHART No. LXXI—Evening School Class Record: an office summary of the facts for each unit course. This summary is made by months in compact form on a sheet of letter size and provides for these entries for each night the course is in session: date, enrolment, attendance, and number checked out. It also provides for these entries as a summary of the foregoing data: total attendance, total enrolment, total number checked out, average attendance, and total student hours of instruction. A summary of the facts for the whole unit course is made on this sheet, as are also the entries covering total attendance, total enrolment, total check-outs, average attendance, and total student hours. The sheet also provides for these additional entries: instructor's rate of pay, cost of supplies used, cost of equipment, miscellaneous expenses, total of these items, and the total cost of operation of the course per student hour. This form enables the director to check every pertinent fact about any unit course, to compare this unit course with others, and to compare the same course with the corresponding record of the previous year or years. Finally, he can compare student-hour costs with those of other evening schools. Not until these costs are figured, by schools generally, on the basis of student hours, will this be possible, and it is a reform greatly needed.

LXXII—Student's Shop Progress Chart (for recording the progress of students taking shop work). Size $13\frac{3}{4} \times 17\frac{3}{4}$ inches. A code of the specific jobs to be done in the course is

first made, giving each job a definite number, let us say from 1 to 20. The chart has a box head at the top—a wide first column to the left being headed "Names of students." Across the page, twenty narrow columns are numbered 1, 2, 3, etc., up to 20. When John Cashman, student number 8, is assigned job number 11, to illustrate, the instructor puts in column 11 opposite his name, this mark: L, indicating that the assignment has been made. When the job is completed by Cashman in a satisfactory way, the instructor returns again to column 11 and completes the mark by adding the other half of a square so that it becomes this mark: □. This shows that the job has been completed. At the same time, the instructor writes inside this square the letter A, B, C, D, or E as Cashman's grade on the performance of the job. This has proved a most excellent device for keeping track of assignments of students to jobs and of the completion of jobs, as well as for recording the grades of students.

C

Lesson-Plans

One of the most necessary things in an evening industrial school is lesson-planning. Otherwise there is lack of definite, progressive instruction. The only way to get such planning is to require it and to check up instructors in order to ensure it. Three devices are described below:

CHART No. LXXIII—A Unit Course of Ten Lessons. After the teaching content of such a course has been secured by job analysis, it must be broken up into lessons, which it was decided in this

case should be ten in number. This gave the following set-up of lessons arranged in the proper instructional order:

Unit EA-4	Carburetion—10 lessons
Lesson No. 1	Principles of Carburetion
Lesson No. 2	Fuel
Lesson No. 3	Fuel Feed Systems
Lesson No. 4	Fuel Vaporization
Lesson No. 5	Carbureters—plain type
Lesson No. 6	Carbureters—metering pin type
Lesson No. 7	Carbureters—expanding type
Lesson No. 8	Carbureters—compensating jet type
Lesson No. 9	Carbureters—mixed types
Lesson No. 10	Review and Examination

This unit course of ten lessons starts with the fundamentals of carburetion and advances to the more complicated types of carbureters. The simple types of carbureters are first discussed, demonstrated, illustrated, and operated under actual test conditions. Adjustments, troubles, and remedies are covered thoroughly before moving to the next type of device.

With this series of progressive lessons, the characteristics, weaknesses, troubles, adjustments, and installations of carbureters are taught in a sequence which makes the instruction easy to grasp on the part of the learner and easy to teach on the part of the instructor.

CHART NO. LXXIV—An Evening School Lesson-Plan. It is difficult to get an instructor to plan in advance what he proposes to teach in a lesson on a given subject within a course (for example, Principles of Carburetion—Lesson 1 of Chart LXXIII). The only way to ensure this is to provide some form for his use and train him into the *habit of always using it*. One form which has been used successfully is of letter-sheet size. To distinguish it as an important sheet, buff-colored paper is used. Across the top of it, spaces provide for these entries: the evening or evenings of

the week on which the class is in session; the date for which the proposed lesson is planned; the name of the instructor; the name of the unit course; its number; and the number of the proposed lesson in the course. Down the page, on the left-hand side, each followed by a considerable space, five headings are printed as follows: 1. Object of this lesson; 2. Teaching points; 3. List test or check-up questions, if any; 4. References (list assignments, if any); and 5. Use other side for general remarks for office, etc. With this in his hands, the director or supervisor is in a position to detect whether the instructor is really planning his lessons and whether he is doing this efficiently. The former is then in a position to help the instructor at the points where he may be weak.

CHART No. LXXV—A Checking Sheet for Evening School Lesson-Plans (size $5\frac{1}{2}$ x $8\frac{1}{2}$ inches). Since proper lesson-planning is vital, the director or supervisor must not only check the planning done by instructors but follow up the check so as to improve the work of those who do not discharge this phase of teaching properly. One device which has proved very successful is a printed letter form which is addressed by the director or supervisor to the instructor. After emphasizing the importance of good lesson-planning, the letter indicates certain points at which the instructor is weak, and he is asked to come in and see the director about the matter. The specific lesson-plan to which objection is made is stated in terms of the unit course and the number of the lesson in question.

Ten points are listed on the letter sheet and those which apply to the instructor's work are checked. These ten features of inefficient lesson-planning are stated as follows: Heading incomplete; Object of the lesson indefinite; Lesson covers too much ground; Teaching points too few; Teaching points too general—should have sub-points under each; Plan too crowded for most efficient use; Lack of check-up questions; References not given; References not definite enough; Lacks definite assignment. At the close of the sheet, several blank lines are left for remarks.

INDEX

A

- Administration (State) of local school, 317; administrative vs. supervisory responsibilities, 319-321; analyses of the responsibilities for local classes of the State board, 319-321; approving and reimbursing local evening schools, 329-330; assisting the local authorities, 328-329; clearing the way for local schools, 322-323; cooperation in legislation, 330-331; defining the job of local board as agent, 323; general agent and local agent, 319-321; evening industrial classes a part of the State program, 322; organization, 331-334; real purpose of, 318; real subject of State administration and supervision, 317; State board specifications defining approved evening classes, 324-325; State board specifications defining the conditions governing approved evening classes, 325-328; sound working relations, 334-335
- Administrative vs. supervisory responsibilities, 319-321
- Advertising, 268-274
- Analyses of the local director by State supervisor, 355-363
- Analyses of the responsibilities for local classes of the State board, 319-321
- Appendix, 375; checking sheet for evening school lesson-plans, 382-383; for registration purposes, 377-378; instructors and instructors' records, 378-379; lesson-plans, 380-382; records, forms, and blanks for administration, supervision, and instruction, 377
- Approving and reimbursing local evening schools, 329-330
- Assisting the local authorities, 328-329
- Assisting the local board to correct unsatisfactory conditions, 369-370
- Assisting the local board to improve the quality of service, 371
- Assisting the local board to secure the best possible results from money expended, 372-374

B

- Best ways for giving skill, knowledge, and auxiliary information, 237
- Building auxiliaries, 75; arm-chairs vs. tables, 75-76; cafeteria, 79; library facilities, 77-78; locker-rooms and check-rooms, 80-81; purchasing and stores department, 81-84; seating, 75-77; seating for shops and laboratories, 76-77; social rooms, 79-80; wash-rooms and toilets, 81
- Buildings for evening industrial schools, 63; accessibility, 63-64; central vs district centers, 65-70; choice between buildings, 70-71; comparative advantages of centralized vs. district school, 73; economy in use of buildings, building equipment, and teaching equipment, 67-70; hours of demand, 93; special centers, 72
- Business, the evening industrial school as a, 27-35

C

- Characteristics of good and poor management, 266-267
- Charts (*See table of charts at front of book*)
- Checking the work of the director, 364-366
- Clearing the way for local schools, 322-323
- Common indication of poor results in teaching, 197-202
- Coöperation between State and local boards, 350-351
- Coöperation in legislation, 330-331
- Cooperative action to improve the local schools, 368-369
- Courses of study, 116; administrative efficiency, 131-133; aim of the unit course, 212; course for the apprentice machinist, 122; course for the journeyman machinist, 123; course for the shop foreman machinist, 123; credits, 124; determining the teaching content, 117; devices for mass training, 130; general vs. assembly courses, 121; insuring functioning subject-matter, 127-128; methods of organizing functioning subject-matter, 117-120; must be secured from the trade, 133; new type of general course, 121; the old vs. the new service, 125-127; unit courses, 122-125; unit courses vs. old general courses, 130

D

- Defining the job of local board as agent, 323
- Director, function of, 135; analyses of the local director by State supervisor, 355-361; checking the work of, 364-366; defining responsibilities, duties, and powers of, 252-258; planning the improvement of local director, 363-366; studying the local

director, 351; studying the work of the local director, 362-363; supervision of the local director, 351-352; the director checks himself, 203-204; the evening school director and his staff, 258-262; the local director, 353-354

- Drawing school, evening, 9-12; causes of failure, 5-9; history, 12-14; lessons from, 3-5

E

- Economic case for the evening industrial school, 16-17; changing conditions and problems in vocational education, 17-20; place of, in vocational education, 20-25; science and invention constantly revolutionizing industry, 16-17; the need for pusher education, 19
- Efficiency devices in instruction, selection, and handling of student workmen, 213-217
- Efficiency factors and business principles for the evening industrial schools, 27-35; defining responsibilities, duties, and powers of the director, 252-258
- Efficient teaching methods and procedures, 223
- Engineering formula for efficiency, 210-211
- Evening industrial classes a part of the State program, 322

F

- Federal Board for Vocational Education, 304; advice to objectors, 312-313; discretionary standards as constructive safeguards, 313-314; eight vital questions for local board, 305-309; mandatory and discretionary standards for approved evening industrial schools, 310-312; relations of federal board to State board,

305; the main questions for local authorities, 315; the main questions for the State boards, 315

Fees, 289-297

Five essentials in real teaching, 237-239

Forms (students), 288; absence check, 293; admittance slips, 292; applications, 290-291; certificates, 299; checking-out card, 297-298; instructors' reports, 296; instructors' supervision report, 206-207; placement record at school, 299-300; receipt, 292; refund receipt, 299; roll-call card, 294; special forms, 300-301; students' record, 295; supervision report, 206; transfers, 293

Four steps in teaching, 243

Function of evening school director, 135

Functioning subject-matter, 99; cold-storage knowledge vs. applied knowledge, 107; cold-storage skill vs. applied skill, 107-108; functioning subject-matter vs. cold-storage information, 108; getting functioning subject-matter, 108-110; "keeping up with Lizzie," 113; methods of getting subject-matter, 110, 113-114; safeguards to insure functioning subject-matter, 113; understandable by the learner, 102, 106; usable help for the occupation, 101; usable training, 99; value for occupation, 101-102

G

General agent and local agent, 319-321

Getting the new instructor started, 187-188

H

Heating, 90; checking sheet on heating and ventilation, 96; room

temperature standards, 94; special difficulties, 91-92; special problems, 93; temperature, 91

I

Individual instruction, 224-226

Instruction, efficient, 210; efficiency devices in instruction, selection, and handling of student workmen, 213-217; efficient teaching methods and procedures, 223; formula applied to evening school, 210-212; individual instruction, 224-226; making the instruction real, 217-222; supervision a vital factor, 189-190; the engineering formula for efficiency, 210-211; training on real jobs, 217-222

Instructors, preliminary training of, 175; a workable plan, 181-182; characteristics of tradesmen as instructors, 176-177; competent vs. less competent instructors, 178-180; conditions necessary to secure and improve competent instructors, 182-183; conditions to be met, 175-176; success factors in, 184-185; the real problem to be met, 180-181; value of preliminary training, 185-186

qualifications of, 144-147; ability to analyze, 145-158; ability to teach, 150-151, 157-158; as a citizen, 151-152; executive ability, 147-158; general education, 147-161; health and vigor, 145-159; mastery of skill, 144-157; personality, 146; trade understanding of instructor vital, 169

selecting, 154; certification of, 163-165; devices for testing qualifications, 161-162; discriminating between qualifications, 154; how to select instructors, 154-156; methods of determining qualifications, 155-161; pay of, 162-163; State

requirements for class-room instruction, 167-170; State requirements for shop instruction, 164-168

training in service, 187; common indication of poor results in teaching, 197-202; getting the new instructor started, 187-188; instructors' code on mistakes in teaching, 193-194; keeping the instructor up to date, 207-208; kind of help needed, 190; meeting the common need of, 190-193; meeting the real conditions, 186-188; planning the improvement of, 202-205; supervision a vital factor, 189; supervisor reports to teachers on shortcomings, 206-207; training on the job, 189; trouble-shooting in teacher-training, 194-195; visible inefficiencies among instructors, 195-197

K

Keeping the instructor up to date, 207-208

L

Labor-saving devices in training, 227-230

Light, heat, and ventilation, 85

heat, 90; checking sheet on heating and ventilation, 96; room temperature standards, 94; special difficulties, 91-92 special problems, 93; temperature, 91

light, 85-86; chart for checking lighting conditions, 88; lighting systems, 89-90; measuring light, 86; standard foot-candle minimums, 87

ventilation, 95; checking sheet on heating and ventilation, 96; humidity, 94-95; rating sheet on condition of building, 98

Lyceum, 4-5; causes of failure, 6-14; history, 5-14; lessons from, 13-14

M

Management and supervision, local, 265; advertising, 268-274; characteristics of good and poor management, 266-267; handling the flow sheet of evening school students, 278; management of costs, 280-284; management of improvement of employees, 284-286; management of operation, 275-279; management of preparation or starting, 268-270; planning to prevent the shortcomings of instructors, 204-208; policies, 271-273; the function of the evening school director, 135; the director checks himself, 203-204

Management of costs, 280-284; of operation, 275-279; of preparation or starting, 268-270

Mechanic's institute, 3; causes of failure, 5-14; history, 3-12; institute vs lyceum, 4-5; lessons from, 9-14

Mediums used in instruction, 241-242

Methods and procedures, efficient teaching, 224; adequate repetitive training, 235-236; best ways for giving skill, knowledge, and auxiliary information, 237; effective instructional order, 234; efficient teaching technique, 231-232; five essentials in real teaching, 237-239; individual instruction, 224-227; individual progression, 234; labor-saving devices in training, 227-230; mediums used in instruction, 241-242, some reorganized teaching devices, 239-241; teaching vs. cramming, 237; tell, show, do, and check the four steps in teaching, 242-244

O

Organization (local) of evening school, 245; defining respon-

sibilities, duties, and powers of the director, 252-258; general evening school, 264; large public educational system, 248-250; line organization, 245-246; locating the evening industrial school in a line organization, 250-251; organization as a cost factor, 262-264; private school, 246; small public evening school, 247; the evening school director and his problems, policies, and procedures with his superior officers, 252-258; the evening school director and his staff, 258-262

P

Planning to prevent the shortcomings of instructors, 204-208
Policies, 271-273

R

Records, reports, and forms (student), 288; handling evening school matters with appropriate forms and blanks, 302; the school career of I. M. Worthy traced with appropriate school forms and blanks, 289-301
Reports, 288

S

State board specifications, defining approved evening classes, 324-325; defining the conditions governing approved evening classes, 325-328
Stimulating the evening industrial school, 33-35
Student, the evening school, 37-39; adapting the evening school to its customers, 47-53; characteristics of, 37-39; compared with the adolescent, 38; distance to be traveled by students, 64; individual variations, 40-46; inhibiting factors, 44-45; learning

ability, 45-46; motive in attending, 39; priceless training assets, 46-47; records, reports, and forms, 288; selection and handling student workmen, 213-217; students' supplies, 83

Studying the local director, 351

Studying the work of the local director, 362-363

Success factors in the evening industrial school, 54-60; rating chart on, 61-62; recognized success factors in the conduct of an evening industrial school, 55-60; when is an evening industrial school conducted efficiently? 55

Supervision of the local director, 351, 352

Supervision (State) for the improvement of local schools, 350; analysis of local director by State supervisor, 355-361; assisting the local board to correct unsatisfactory conditions, 369-370; assisting the local board to improve the quality of service, 371; assisting the local board to promote and extend the service, 371-372; assisting the local board to secure the best possible results from money expended, 372-374; checking the work of the director, 364-366; coöperation between State and local boards, 350-351; coöperative action to improve the local schools, 368-369; corresponding duties of the State supervisor, 353-355; planning the improvement of local director, 363-366; studying the local director, 351; studying the work of the local director, 362-363; supervision of local director, 351-352; the local director, 353-354; when the State supervisor plans, 367

Supervision (State) of reimburse-

ment, 337; checking sheet of State supervision for use in inspection for reimbursement, 339-340; difficulty of personal inspection, 340-342; duty to inspect, 338; inspection for reimbursement as a step in supervision for improvement, 346-347; inspection without visitation, 345-347; items to be inspected, 338; State plan of inspection for reimbursement of local schools, 343-345

T

Teaching vs. cramming, 237
Tell, show, do, and check the four steps in teaching, 242-244
Training on real jobs, 217-222
Trouble-shooting in teacher-training, 194-195

U

Unit courses of study, getting, and scheduling, 134; breaking trades into suitable unit courses, 135-136; developing a system of unit courses, 138-139; scheduling unit courses, 139-142; unit courses, 122-125, 130; what should be the aim of a unit course? 212; where secured, 134; working with the instructor, 137

V

Ventilation, 95; checking sheet on heating and ventilation, 96; humidity, 94-95; rating sheet on condition of building, 98
Visible inefficiencies among instructors, 195-197

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